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AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1992

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED SECOND CONGRESS

FIRST SESSION

ON

H.R. 2698

AN ACT MAKING APPROPRIATIONS FOR AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES PROGRAMS FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1992, AND FOR OTHER PURPOSES

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AGRICULTURE, RURAL DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1992

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

NONDEPARTMENTAL WITNESSES

The following testimonies were received by the Subcommittee on Agriculture, Rural Development, and Related Agencies for inclusion in the record. The submitted materials relate to the fiscal year 1992 budget request for programs within the subcommittee's jurisdiction.

AMERICAN ASSOCIATION OF CROP INSURERS

STATEMENT OF JOHN H. JOYCE, CHAIRMAN

Mr. Chairman and members of the subcommittee, we thank you for the opportunity to present our views on the crop insurance program's funding needs for the 1992 fiscal year.

The views expressed are those of the American Association of Crop Insurers (AACI), a voluntary membership trade association of the private crop insurance industry consisting of insurance companies, private reinsurers, local crop insurance agents and adjusters. AACI members write the majority of the crop insurance protection for farmers in the U.S. Private crop insurers write about 90 percent of the government sponsored crop insurance business.

In 1990, the crop insurance program provided risk management protection totalling about $12.5 billion on about 100 million crop acres for just under one million farmers in the U.S. On a macro basis, the protection provided to farmers through the crop insurance program extended from the farm to every "Main Street" business that deals directly or indirectly with agricultural producers and their families. On this aggregation, the $12.5 billion of crop insurance protection in force translated to about $60 billion[1] of economic security in 1990 through the crop insurance program. Rural communities had the assurance that approximately this level of economic activity would occur either through crop sales or insurance loss payments in the event of catastrophe because of the crop insurance economic safety net. This makes the crop insurance program an important part of the government's rural economic policy.

We join the thousands of crop insurance policyholders and local business people in commending this committee for fully funding the crop insurance program in 1991. That action gave personal and economic comfort to farm families at a time when the economic safety net of traditional farm programs had to be reduced to comply with budget limitations. The crop insurance program remained stable and basically unchanged so that they could manage their crop production risks at an affordable cost.

As farm policy becomes more market oriented, farmers are required to place more reliance on the marketplace as their primary source of income...from crop sales. When disasters strike, they have reduced or zero crop sales, therefore, they need crop insurance to provide them with an economic safety net. In this environment, a good crop insurance program should be the centerpiece of U.S. farm policy!

Crop insurance as a centerpiece of farm policy is a new position for the program as a result of the reduced benefits of the 1990 farm law and because more farmers are using crop protection insurance in new ways. Traditionally, farmers have used crop insurance to reduce their crop production risks and to collateralize operating loans. However, today there is more talk in farm country of using the crop insurance yield guarantee as a rule of thumb on how much production can be committed for improved prices through futures contracts when market price rallies occur. We have heard of numerous examples during the last few months where farmers locked in a price increase of 20 to 30 cents per bushel higher than the expected cash price at harvest time, and backstopped the sales contract with crop insurance protection at a cost of less than 10 cents per bushel. This kind of action maximizes profits for farmers, benefits farm families and keeps rural America strong. This new role for crop insurance is likely to expand in the future.

For 1992, we strongly encourage this subcommittee to provide full funding of the program, so that producers have maximum risk management certainty at a time when much uncertainty remains from the impact of the basic farm programs. The effect of the changes of the Food, Agriculture, Conservation and Trade Act of 1990 (farm act) are just now becoming more apparent to many in rural America. Crop insurance, which some surveys show is used to secure

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[1] The economic security is calculated by multiplying the 1990 crop insurance liability by the commonly used economic multiplier of 5.

60 to 70 percent of the farm operating loans with commercial banks, will likely become even more important in this environment in the future.

Now we will comment on our concerns regarding the operation of the crop insurance program.

Farmer Participation: Although programs must operate within acceptable budget limits, we believe that the long term evaluation of this program's success will depend largely on the extent that it is utilized by farmers' families to protect their business and chosen way of life. We are pleased that the 1990 participation level continued at more than double the acres insured in the mid-1980s. Critics have attempted to credit this greatly increased participation in 1989 and 1990 with the linkage to the disaster payment eligibility. However, FCIC tells us that only about 6.5% of the 1989 and about 2.5% of the 1990 premiums can be tied directly to this requirement. Therefore, we believe much of the credit for the retention of the high participation level for 1990 goes to increased farmer recognition of the need for protection and the benefits of the private sector marketing of the program.

Our analysis indicated that during 1989 and 1990, for the first time, many lower risk producers participated in the program. This provided the potential to improve the actuarial sufficiency of the program. For this reason, we strongly encouraged the use of restraint in implementing 1991 rate increases to maximize continued participation by this class of business.

Much to our dismay, FCIC made significant upward adjustments in the premium rates and made major changes in the rate-making methodology which caused additional premium increases on an individual producer basis. For an example of the impact, let's look at the state of Iowa where the corn program has an estimated 10 year loss ratio of .84, which compares favorably to the FCIC target of .88. An overall 11.8 percent rate increase was implemented by FCIC. An analysis by the largest MPCI company of the combined impact on individual producers showed that 38 percent of the company's book of business received an increase of greater than 15 percent and 23% of the business had increases of greater than 20 percent. Even though FCIC ultimately agreed to cap the individual rate increases for most producers at a maximum of 20 percent, unusually large numbers of cancellations are occurring, as we predicted if such drastic increases were implemented. Early reports from the field also indicate that a large number of the lower risk producers are included in those cancellations. If the early indications are correct, the rate increases actually may cause a reduction in actuarial sufficiency for the program because of the loss of the good lower risk producers. Furthermore, if another major drought occurs in the mid-1990s, as some predict, dire economic consequences could result from the FCIC rating changes if many farmers are without protection due to high cost.

Supplemental/Alternate Coverage and Rate Programs: The crop insurance reforms in the farm act charted new ground by authorizing FCIC to federally reinsure new programs developed competitively by the private sector to fill voids in the current program. We believe that this is the best possible way to provide improved coverages and rates that have been requested for years by many commercial growers. We have asked FCIC to move aggressively in this area by beginning the rules formulation process. Those rules should require companies to retain increased levels of underwriting risk on such programs but make catastrophe government reinsurance available to limit the exposure for the private sector when disasters such as 1988 occur. We further believe that these programs, coupled with the basic coverage (designed by the government), could be the key to achieving increased farmer participation in the program.

We are disappointed that FCIC's announced schedule will likely delay the availability of federal reinsurance on these coverages until the 1993 crop year. While a number of companies have developed limited supplemental coverages for 1991, they have generally had to make them available on only a limited basis due to limited private sector reinsurance capacity.

Expanded Use of the Private Sector: The 1990 Farm Act also provided strong direction to FCIC to make maximum use of the private sector and thereby avoid the expense of duplicating the services that either are or could be available from the private sector. We believe that the full implementation of this directive can result in substantial benefits for both farmers and taxpayers.

For the past 10 years, the private sector has had the opportunity to deliver the FCIC designed and rated program...according to FCIC's prescribed rules. The improved marketing and servicing by the private sector is one of the reasons for the generally improved farmer participation. However, the operating rules imposed by FCIC have greatly limited the potential for efficiency and, to some extent, the effectiveness that could be realized if more program and operational decisions were driven by business economics.

Despite the current rules, the risk-bearing private industry is delivering the program for about 34 percent of premium, which compares well with the FCIC cost of 36 percent of premium in 1979 (total government delivery). Unfortunately, the cost of delivering government policies has increased by almost 2.5 times during the same years of comparison. Full implementation of the intent of the farm act is the right way to correct the problem in this area.

Standard Reinsurance Agreement (SRA) for 1992: FCIC canceled the current operating agreement December 31, 1991, for the 1992 reinsurance year. At this time, FCIC is still working on a new SRA to become effective July 1, 1991. The first draft published in the Federal Register for comment by March 31, 1991, had some good concepts but proposed far too drastic a change to implement in an orderly manner in the limited time available. Therefore, we suggested that rather than run the risk of disrupting service to the approximately 90 percent of the current business volume handled through this agreement, the 1990 SRA be amended to comply with the 1990 farm act (increasing the required risk retention of the companies) and extended for one more year. We are awaiting FCIC response to our suggestion.

Summary: We are pleased to have the opportunity to participate with the government in providing risk management protection to farmers and to help strengthen the economic security of rural communities through this program. The program is working reasonably well for many thousands of individual producers which is shown by the fact that they survived severe crop losses in the 1980s. The farm act of 1990 provides a framework for meaningful reform to adapt the program to the needs of farmers in the 1990s. We are commited to work closely with FCIC to implement these provisions in the most effective way possible.

We appreciate this opportunity to express our views and look forward to working with this subcommittee, the other agricultural leaders in Congress, and the Administration to make the crop insurance program work even better in the future.

STATEMENT OF THE AMERICAN ASSOCIATION OF NURSERYMEN

Mr. Chairman, the American Association of Nurserymen (AAN) welcomes this opportunity to present the nursery industry's views regarding the Fiscal Year 1992 budget for the U.S. Department of Agriculture (USDA). AAN is the national trade association of the dynamic and growing nursery industry. Our mission is to advocate, promote, and foster a favorable business climate for the nursery industry. AAN directly represents over 3000 members -- nursery crop farmers, landscape specialists, and garden center retailers. We indirectly represent an estimated 18,000 additional small businesses and family farms through the membership of state and regional nursery and landscape associations.

USDA's Economic Research Service (ERS) estimates farmer cash receipts of nursery and greenhouse crops in 1990 at $7.8 billion. The industry accounts for 10% of all farm crop cash receipts -- ranking behind soybeans and corn in plant crops, but accounting for more farm receipts than wheat or cotton.

The rising population, changing lifestyles and higher disposable incomes are encouraging increased consumer demand for nursery/greenhouse products. Heightened environmental concerns of consumers, government and industry (e.g. the "America the Beautiful" initiative to plant one billion trees in city landscapes and rural settings) will further increase demand for the nursery industry's products.

In view of this increasing demand, and to ensure that nursery crops are continually available to improve our environment's quality and save valuable natural resources, AAN has graciously been invited by this Committee each year to submit testimony highlighting important research areas requiring the immediate and serious attention of this Committee -- and all of Congress.

At the same time, the nursery industry is committed to a significant reduction in the federal deficit as AAN members understand its potential danger to the nation's economy. AAN's FY92 recommendations reflect careful study and propose modest increases at best. To its credit, and unlike so many other agricultural segments, the nursery industry does not receive, and does not want, any federal subsidies or similar support. Yet, we believe in the critical need to maintain the integrity of federal research programs vital to American agriculture. AAN believes the federal government's contribution to research is a reasonable expenditure of federal funds, and we urge Congress to provide the critical funding as outlined herein.

National Initiative for Research on Agriculture, Food and Environment

AAN sincerely thanks Congress for its support for this national initiative begun in FY91. AAN supports the proposed increase to $125 million. In addition, we support the $25 million that is proposed for a new program of university research facility competitive grants. We understand that full matching of Federal grants with non-Federal funds will be required. Likewise, AAN supports annual increases for the facility program to maintain funding at 20 percent of the National Research Initiative program -- provided funds are appropriated on a non-earmarked basis.

Water Quality

AAN supports the $33.2 million increase in proposed funds to continue USDA water quality research programs funded in FY91 as part of a coordinated government-wide initiative. We concur with the major objective of the USDA water quality initiative to provide the agricultural community with the information necessary to voluntarily adopt improved, environmentally-sound management practices which do not sacrifice profitability. This supports AAN's goal to establish the nursery industry as the champion of prudent water use.

Global Climate Change Research

Whole segments of agriculture, including landscape horticulture can be adversely affected by shifts in temperature and rainfall. The potential effects on climate patterns which may result from increased concentrations of carbon dioxide and other gases is of increasing concern to the nursery industry. However, trees and other landscape plants represent very low-cost means for significantly reducing energy consumption and carbon dioxide build-up which contribute to any potential global climatic changes. AAN supports the proposed $13.5 million increase over the FY91 level for a total of $52.1 million in FY92 for global climate change as USDA's contribution towards this government-wide research and data analysis program.

National Agricultural Weather Information System

In an era when efficiency has replaced increased yields as the route to improving farm profitability, better weather information is the key to keeping American agriculture healthy and sustainable. When used as part of a modern farm management system, weather information is a key ingredient in integrated pest management, irrigation timing, harvesting operations, animal and nursery production, etc. to facilitate implementation of leading edge technologies. Knowledge about weather and its impact on agriculture is essential for wise farm decision-making to assure global competitiveness in an environmentally sound manner.

Subtitle D of the 1990 Farm Bill includes the National Agricultural Weather Information System (NAWIS) -- an ideal opportunity to implement a forward-looking, state-of-the-art weather information system for American agriculture, including the nursery industry. AAN requests a $20 million appropriation for the period through 1995 to fund the National Agricultural Weather Information System.

FOREST SERVICE

"America the Beautiful" Initiative

AAN thanks Congress for its support in FY91 of this major new environmental initiative. This commitment to a nationwide tree-planting, maintenance and improvement program offers individual citizens the opportunity and incentive to add plants to the environment. In so doing, many tangible environmental, social, psychological and economic benefits will be realized. Therefore, AAN vigorously supports the proposed increase to $140 million for the crucial "America the Beautiful" initiative under the U. S. Forest Service, particularly the proposed funding of $32.117 million for the urban and community forestry component therein. AAN commends the U. S. Forest Service for its cooperative efforts and activities with the nursery industry.

AGRICULTURAL RESEARCH SERVICE

Plant Science

AAN thanks the Administration and Congress for the continued and increased support of the Agricultural Research Service (ARS), particularly its plant science research and programs on plant productivity affecting environmental horticultural crops. AAN supports the 4.6 percent increase in the plant science budget to $243.6 million. AAN is likewise supportive of ARS' involvement with landscape plant breeding and germplasm programs. We favorably view increased research activity in programs which involve an integrated approach to the development of pest and stress-resistant woody landscape plants, as well as preservation of their diversity and evaluation of their performance in the landscape. As such, AAN supports redirection of $880,000 in ARS funds (as was similarly done for whitefly research in FY91) from within its Plant Science budget for these research programs to be successfully conducted.

Automated Plant Handling Systems Research

Despite its successful growth rate (in terms of number of companies and increasing sales), the nursery/greenhouse segment of American agriculture is realizing a progressively smaller share of the vastly expanding U.S. "appetite" for environmental horticulture products. Statistics from the USDA-ERS Foreign Agricultural Trade Division show a 70% deterioration in domestic potential. Growers also depend on plant handling techniques that are very labor and resource intensive. For example, payroll accounts for 34% of the typical nursery farmer's revenue. Labor shortages during peak production periods are becoming increasingly acute in certain areas of the country.

Productivity per worker must increase dramatically for the U.S. environmental horticulture industry to achieve and maintain a competitive edge in a market with strong expansionary potential -- both domestically and internationally. Automated systems and materials handling are the most feasible long-term solution to this increasing labor shortage. It is anticipated that automated plant handling systems would potentially reduce labor costs by one-third and other operating costs by about 15 percent. It is also estimated that productivity increases of 25-35%, and industry expansion potentials of 20-25% over current production levels can be realized if automated plant handling systems are incorporated.

Unfortunately, neither the federal government nor the nursery/greenhouse industry has yet been assertive in the research and development needed to achieve operational automated plant handling systems to address decreasing labor availability. AAN strongly proposes funding of an automated plant handling systems research program to be shared by ARS in cooperation with the Cooperative State Research Service (CSRS). ARS would detail five scientist years to the program at a cost of $210,000 each. CSRS would support 20 projects annually at $50,000 each. In addition, it is proposed that the program begin with an international conference of world leaders and researchers in automated plant handling systems who would discuss current technology status and opportunities for the environmental horticulture industry. AAN requests $2.05 million in new funds for FY92 to support this automated plant handling systems research program as described.

Professional Staff

AAN has long believed that ARS needs to strengthen and reinforce existing nursery crops research programs at the U.S. National Arboretum, Washington, DC; the Horticultural Crops Research Laboratory, Corvallis, OR; the ARS Laboratories in Wooster, OH; the Florist and Nursery Crops Laboratory, Beltsville, MD; the Nursery Crops Research Laboratory, Delaware OH; and, elsewhere. This would involve integration of an interdisciplinary approach to research involving environmental horticulture products -- plants which improve and enhance the quality of man's environment. As previously mentioned, this research includes nursery crops breeding and germplasm programs, as well as the development of pest and stress-resistant landscape plants. AAN strongly urges the addition of $700,000 to the proposed ARS Plant Science budget to ensure that additional professional staff such as an entomologist, a plant physiologist, a plant pathologist, and curators are added to the appropriate ARS staff in order to strengthen and reinforce existing programs, as well as to successfully carry out new research programs as outlined previously under the Plant Science portion of this testimony.

Pesticide Clearance

The Inter-Regional Project #4 (IR-4) has greatly assisted the nursery industry's efforts to obtain more prompt pesticide registrations for minor use crops when such pesticides are already registered for use on food or feed crops. These pesticides are absolutely essential for nursery crop farmers to comply with state and federal regulations requiring nursery crops in interstate shipment to be 100% pest-free. Since nursery farmers must have safe, effective pesticides available to meet these requirements, it is essential that ARS continue its pesticide clearance program research activities on environmental horticulture crops. ARS concurs and has included an additional $1 million in its FY92 budget for IR-4. AAN is most appreciative and urges Congressional approval of these funds.

Japanese Beetle

Of acute interest to the nursery industry is continued pesticide research for Japanese beetle control on field-grown and container nursery stock for certification and export to Canada. Since the 1979 loss of chlordane for treatment and certification, over $100 million in export plant sales to Canada have been lost because U.S. nurserymen cannot safely and economically meet quarantine requirements.

AAN is appreciative of ARS' 1990 research with the pesticide Oftanol 2. Additional work is needed to test different rates of application. Additional research is also needed in other critical areas including field-grown plant treatments, alternative application technologies and treatment methods, and testing and clearance of new pesticides. AAN strongly urges this Committee to provide adequate funding for ARS to pursue these imperative research needs.

Integrated Pest Management

By its very nature, the nursery and landscape industry is committed to protecting and beautifying the environment. As a result, it is turning increasingly towards integrated pest management systems. AAN supports the Administration's request for $1.5 million to fund development of improved integrated pest management strategies.

Whitefly Research

AAN thanks Congress for providing an increase of $150,000 in FY91 over FY90 funding for whitefly research. This was greatly appreciated, but the discovery of a new, divergent strain of the sweet potato whitefly, as well as the related research demands now identified with respect to ash whitefly require additional funding for FY92. AAN requests this Committee provide $1.5 million over the FY91 appropriation. Together with the resources that ARS has been able to redirect from lower priority programs, this increased funding will help provide a timely resolution to this problem.

COOPERATIVE STATE RESEARCH SERVICE (CSRS)

Nursery Crop Research Station (Tennessee)

AAN is deeply appreciative of Congress appropriating $248,000 in FY91 towards the construction of the Nursery Crop Research Station in Warren County, Tennessee. However, an additional $500,000 in FY92 is needed to further its construction phase. The station will address national research problems affecting environmental horticulture. Anticipated research priorities include: (1) development of plant breeding programs, genetic enhancement of nursery crops and effective pest management; (2) testing and evaluating new germplasm presently available through the U.S. National Arboretum; (3) stress tolerance in plants; and, (4) drip and other irrigation systems for nursery production. To begin implementation of this needed research, AAN requests $450,000 in FY92. In addition, AAN commends ARS for its cooperative efforts in working with Tennessee State University.

State Agricultural Experiment Stations (SAES)

AAN continues to wholeheartedly support Cooperative State Research Service programs -- not only the National Research Initiative mentioned earlier, but also the important national priority programs in university research through the Hatch Act. AAN was pleased that Congress appropriated a 4.6% increase in Hatch Act Formula Funds from FY90 to the estimated expenditure of $162.3 million in FY91. Due to the importance and effectiveness of these programs, and the value received from CSRS research, AAN supports a 7.5% increase to $174.5 million. AAN likewise urges the SAES Directors to equitably fund research which is classified as "Research Program 3.15 - Plants to Enhance the Environment."

Special Grants

Pesticide Clearance

For the reasons stated earlier, nursery farmers must have safe, effective pesticides available to meet federal and state quarantines. CSRS must continue its pesticide clearance program research activities, particularly in light of the 1988 amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), requiring the reregistration of all pesticides. Since the number of research trials funded in the environmental horticulture area has decreased dramatically over the last several years as a result of reduced funding, this reregistration requirement is exacerbating an already bad situation. AAN strongly urges this Committee to allocate an additional $3 million for CSRS to more effectively continue its pesticide clearance research program.

Pesticide Impact Assessment

CSRS' pesticide impact assessment program is also very important to the nursery industry. AAN appreciates the increased funding in FY91 and we heartily support the proposed FY92 increase to $3 million.

Integrated Pest Management Research

As previously mentioned, the nursery industry is, by its very nature, committed to protecting and beautifying the environment. As a result, it is turning increasingly towards integrated pest management systems where available and proven effective. However, additional research is necessary to properly implement such systems. AAN supports the proposed increased funding to $5 million for CSRS development of improved integrated pest management production systems.

Dogwood Anthracnose

Dogwood anthracnose was first reported in the northeastern United States in the late 1970's. It was first identified in the southeast in 1988. Within two years, dogwood anthracnose was found in six southern states (AL, GA, KY, NC, SC, and TN). While researchers at leading universities have been studying the problem, more intensive research is necessary to learn about this disease and to assure that effective control measures are found.

AAN appreciates the $100,000 appropriated in FY91 to the state universities of Georgia, North Carolina, and Tennessee for dogwood anthracnose research. To successfully continue these research programs on a nursery crop of significant economic importance to the southern U.S., AAN supports funding of $635,000 for dogwood anthracnose research.

Higher Education

Without competitive graduate training grants, the adequate development of agricultural professionals for the next generation will be extremely difficult. Attracting the best and brightest scholars can rationally and profitably be considered an important investment. Between 1978 and 1990, nationwide enrollment at agriculture and graduate colleges suffered a sharp decline. AAN strongly believes that graduate fellowships constitute a vital part of the continuing effort to overcome this decline. Agriculture colleges remain at a severe competitive disadvantage in attracting competent graduate students. AAN believes a steady increase in funding will help, so we support the proposed increase to $4 million in FY92 for graduate training fellowships.

EXTENSION SERVICE

Representatives of the Extension Service (ES) provide invaluable assistance to the environmental horticulture industry and the 75 million American households who participated in one or more types of indoor/outdoor lawn and garden activities in 1990. ES provides consumers with information on how to properly care for our industry's products so such can serve their function of enhancing the environment. The Extension Service is also a logical and invaluable resource for those seeking information about the production of high-value nursery crops. Although AAN is pleased to note the proposed increase for FY92 in the Smith-Lever 3(b&c) funds, it is simply not enough. AAN supports a 7.5% increase, or an additional $9.5 million to $271.6 million for FY92.

Waste Management

Solid waste disposal is a critical environmental concern. AAN believes there must be a concerted educational effort to achieve those levels of understanding necessary to effect a reduction in the amount of material for which disposal is required, and to encourage recycling and yard waste composting. As a result, AAN supports the proposed $5 million allocation for this new Extension Service program.

Pest Management

AAN thanks the Committee for appropriating an increase to $7.4 million in FY91 for this ES pest management program. Considering the importance of proper integrated pest management education, AAN strongly supports the proposed increase to $10 million for FY92.

Pesticide Impact Assessment

AAN regrets the Committee did not honor the Administration's proposed increase in FY91 to $3.6 million for this important ES pesticide impact assessment program. We urge the Committee to appropriate the FY92 request of $3.6 million.

ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS)

Federal and State governments, as well as most foreign countries, have enacted quarantine laws to prevent the artificial spread of hazardous pests into their jurisdictions. In the U. S., it is the responsibility of APHIS and various state departments of agriculture to promulgate and enforce such quarantines. The federal quarantine program is vital to all efforts to protect American agriculture. AAN strongly supports APHIS' request for adequate program funds to prevent the introduction of additional foreign pests into the United States, as well as to prevent the spread of certain already introduced pests. Inadequate program funds will result in a significant reduction in agricultural productivity, and a similar increase in production costs.

Agricultural Quarantine Inspection (AQI)

AAN commends APHIS for its innovative efforts, including x-ray technology, the "beagle brigade," and first-class mail inspection, to maintain and improve effectiveness in preventing the introduction of foreign animal and plant pests. Port-of-first-arrival inspections are a most vital deterrent against the accidental introduction of such pests.

AAN understands APHIS is implementing a user fee program to fund AQI, and the proposed FY92 budget of $108 million is to be generated through fees levied on international travel and commerce. Historically, AAN has opposed user fees for this federally mandated program, and the nursery industry remains concerned about the potential for indiscriminate use of funds generated through such fees. We support the proposed APHIS approach to levy user fees broadly on all international travel and commerce where U.S. agricultural quarantine inspection is required. Funds generated from such user fees must be exclusively reserved for AQI programs.

Quarantine 37 (Q-37), the federal quarantine which regulates the importation of nursery plants and related commodities, is currently under revision. Phase 2 of this revision process will evaluate requests to allow the importation of additional plants into the United States in growing media. A number of foreign pests have been introduced into the U.S. since Q-37 was first promulgated and, in many cases, these pests have seriously hampered trade in nursery crops. A biologically strong and effective Q-37, and an equally strong AQI program, are vital to protecting nursery and other agricultural interests from potentially damaging foreign plant pests.

Imported Fire Ant

The imported fire ant is a major threat to agriculture but it is not directly injurious to nursery plants. Nevertheless, nursery farmers are adversely affected due to control costs, lost worker productivity, and especially the cost of quarantine compliance to prevent the spread of imported fire ant in nursery plant shipments destined for areas outside fire ant-infested zones. Nursery farmers currently lack a fully effective pesticide treatment for imported fire ant quarantine certification. APHIS must maintain a strong research and methods development program to identify and approve new imported fire ant quarantine treatments.

In view of recent progress in this area, and the likely implementation of an APHIS Experimental Use Permit program to test and monitor the pesticide bifenthrin for imported fire ant control, AAN supports an increase in the proposed FY92 budget to $4.2 million (the FY91 funding level) to support critical regulatory and methods development work.

Gypsy Moth

Gypsy moth is another example of an introduced pest which is not particularly damaging to nursery crops. However, nursery operations within quarantine areas must comply with restrictions designed to prevent the spread of gypsy moth to uninfested areas. Household articles, recreational vehicles, and similar vectors are prime carriers of gypsy moth to uninfested areas. AAN supports the proposed $5.162 million funding level for APHIS' regulatory and monitoring program for this serious forest pest.

Golden Nematode

The golden nematode poses a threat to potato-growing lands both within and outside New York State, as well as to nursery production areas. As many as 9,000 acres in nursery crop production could be affected by the lack of proper control of the golden nematode. AAN urges APHIS to continue the golden nematode program, and supports the modest proposed increase to $862,000 for FY92.

Witchweed

Witchweed is a serious parasitic plant which attacks important crops such as corn and sorghum. Although it does not directly affect most nursery crops, nursery farmers may be adversely affected by witchweed quarantines restricting free movement of nursery crops from infested areas. Witchweed is currently found only in a relatively few counties in eastern North and South Carolina. Furthermore, experts believe witchweed can be totally eradicated within the next several years--if adequate program funding is provided. Therefore, AAN supports FY92 funding for the witchweed program at the requested $5.386 million level.

Japanese Beetle

APHIS is responsible for overseeing certification of nursery crops as free of Japanese beetle to meet quarantine requirements for export to Canada, which is the principal foreign market for US-grown nursery crops. Since 1979, nursery farmers have lacked a practical and effective treatment to satisfy Canadian certification requirements.

Methods research is needed to identify potential chemical and non-chemical control strategies and application technologies. In addition, APHIS is involved in negotiations with Canada to harmonize Japanese beetle quarantine requirements. AAN urges this Committee to provide APHIS with sufficient funding and staff resources to carry out both of these vital activities.

National Plant Germplasm Quarantine Center

AAN strongly supports $12 million in funding for the second phase and timely completion of construction at the National Plant Germplasm Quarantine Center in Beltsville, Maryland. New germplasm of vegetatively propagated ornamental and fruiting plants (such as apples, pears, peaches, plums, grapes and other crops) is vital to American agriculture, including nursery crop production.

ECONOMIC RESEARCH SERVICE (ERS)

The Economic Research Service provides agricultural economic information addressing the concerns and decision-making needs of farmers, consumers, extension workers, private analysts, processors, marketers, and government policy officials. For example ERS provided the farmer cash receipt information found at the outset of this testimony. AAN requests the necessary $2 million for ERS and National Agricultural Statistics Service (NASS) to collect statistics and conduct economic research and analysis of the floriculture and environmental horticulture industry.

As in past years, Mr. Chairman, AAN truly appreciates this opportunity to present to this Committee the nursery industry's views regarding agricultural research. Thank you.

American Association of Nurserymen
FY92 Research Appropriations Testimony
Summary

Program	Support
National Initiative for Research on Agriculture, Food and Environment	$ 125 million
Water Quality	$ 239.6 million
Global Climate Change Research	$ 52.1 million
National Agricultural Weather Information System	$ 5 million additional
Forest Service	
America the Beautiful	$ 140 million
Agricultural Research Service	
Plant Science	$ 888,000 redirect
Automated Plant Handling Systems	$ 2.05 million additional
Professional Staff	$ 700,000 additional
Pesticide Clearance (IR-4)	$ 1 million
Japanese Beetle	*
Integrated Pest Management	$ 1.5 million
Whitefly Research	$ 1.5 million additional
Cooperative State Research Service	
Nursery Crop Research Station (Tennessee)	$ 950,000 additional
Hatch Act Formula Funds	$ 6.167 million additional
Pesticide Clearance (IR-4)	$ 3 million additional
Pesticide Impact Assessment	$ 3 million
Integrated Pest Management	$ 5 million
Dogwood Anthracnose	$ 635,000 additional
Graduate Training Fellowships	$ 4 million
Extension Service	
Smith-Lever 3 (b&c)	$ 9.5 million additional
Waste Management	$ 5 million
Integrated Pest Management	$ 10 million
Pesticide Impact Assessment	$ 3.6 million
Animal & Plant Health Inspection Service	
Agricultural Quarantine Inspection	User Fees
Imported Fire Ant	$ 2.615 million additional
Gypsy Moth	$ 5.162 million
Golden Nematode	$ 862,000
Witchweed	$ 5.386 million
Japanese Beetle	*
National Plant Germplasm Quarantine Center	$ 12 million
Economic Research Service	
Nursery/Greenhouse Industry Statistical Survey and Analysis	$ 4 million

* While specific funding levels are not cited herein, AAN requests Congress to provide adequate FY92 funding to maintain current programs and pursue additional research needs.

STATEMENT OF THE AMERICAN ASSOCIATION OF RETIRED PERSONS

The American Association of Retired Persons (AARP) appreciates this opportunity to express our views on matters of concern to this Subcommittee. Reflecting the Association's concern with the housing and economic situation of rural older people, our recommendations may be summarized as follows:

- Substantially increase funding for the Section 504 home repair grant program as close as possible to the authorized level of $21.1 million;
- Increase funding for the Section 515 rental housing program with special emphasis on congregate facilities for the frail elderly;
- Provide funding for the newly authorized migrant/homeless program. Urge the Secretary to restore the biannual Agricultural Work Force Report; and
- Fund the Food Stamp Outreach program at the $5 million authorized level.

POVERTY AMONG RURAL OLDER PEOPLE

Some of the nation's most persistent economic, housing, and health problems are concentrated in rural areas among older people. In 1989, older people living in nonmetropolitan areas had a poverty rate of 25.7%, compared with 6.9% for those living in the suburbs and 13.8% for those living in central cities.

Economic problems are particularly severe among older rural women living alone and among minorities. When these factors are combined, poverty is nearly universal. In 1987, 80% of older black women living alone in rural areas had incomes below the poverty line. Among all rural blacks, the poverty rate in 1989 was 41.2%. Especially hard-pressed by rural poverty is the southern U.S., where the nine states with the highest rates of poverty for older people are all located.

In addition to problems associated with low incomes, older persons in rural areas have much less access to needed services. The lack of services -- or transportation to services -- can mean losing one's home.

The Association urges special attention to the plight of older migrant and seasonal farmworkers. Working and living conditions, which are generally bad for farmworkers of all ages, are abysmal for older farmworkers. Earnings for farmworkers over age 65 who are engaged in only farmwork averaged only $3227 in 1987, and many receive no Social Security or other benefits. Not surprisingly, farmworkers often experience problems characteristic of the elderly before reaching their fiftieth birthday. Disability levels are high -- 44.5% of farmworker families include a disabled member according to one federal study. Unfortunately, access to needed services has often been blocked by prejudice, language barriers, and a lack of outreach.

To address the problems associated with poverty among rural older people, our recommendations will focus on two areas under the jurisdiction of this Subcommittee: rural housing and food stamp outreach.

RURAL HOUSING

One result of high rates of rural impoverishment is a striking concentration of housing problems among rural older people. According to research by AARP's Public Policy Institute, more than half of all low-income older homeowners are located in rural areas even though only 27% of older households are to be found in such areas. Data from the 1987 American Housing Survey indicate that 45% of older people living in severely inadequate housing reside in rural areas, though only 16% of all older households living in rural areas. In all, 13% of all nonmetropolitan housing units occupied by older people in 1985 were substandard.

These problems are complicated by less favorable lending terms in rural areas. The Housing Assistance Council reports that interest rates are a full percentage point higher in nonmetro areas and the median loan term was substantially shorter -- 23 versus 29 years. For most low-income older families, these terms mean that needed home repairs are simply not feasible.

Recognizing these problems, Congress authorized a significant increase for the Section 504 home repair grant program in the National Affordable Housing Act of 1990. Despite the program's record of success, funds have been frozen for several years, which has meant that the number of households served each year has been declining. In 1980, over 8,000 older families were assisted by this program, a number that shrank to 3,664 last year. The Farmers Home Administration reports that, at the end of FY 1990, a backlog of over 7,000 eligible applicants were waiting for Section 504 grants, a number roughly twice that which can be served at the current funding level.

The Association is very concerned about the Administration's Section 504 proposal which would reduce this small, but critical program by 60% next year. While we recognize the constraints imposed by the budget agreement, AARP urges the Subcommittee to increase the appropriation as close as possible to the authorized level of $21.1 million. The Section 504 loan program should be similarly increased to a level sufficient to match the grants.

A June 1990 FmHA survey indicated that there were roughly four times as many applications for Section 515 housing as could be funded, indicating the degree of unmet need in rural areas. Unfortunately, the Administration's proposal would cut the number of units produced by this program by more than 40% -- from approximately 16,000 to 9,000. Instead, funds for the Section 515 program should be increased, with stronger priority given to serving previously underserved areas and populations such as older farmworkers. Congregate facilities, created both in new projects and through retrofitting of existing projects, should especially be encouraged.

Finally, AARP urges greater attention to programs providing affordable housing to remote rural areas and areas with large concentrations of underserved populations such as older and disabled farmworkers. We are pleased by the set-aside of funds for remote rural areas included in the National Affordable Housing Act. In addition, the Association supports funding for the newly created program for migrant workers and rural homeless people. Migrant workers tend to be older than other farmworkers and are more likely to be minorities with extremely low incomes. In addition, the Association urges the Subcommittee to recommend that the Department resume biannual publication of "The Agricultural Work Force Report," a report critical to tracking the needs of farmworkers which was suspended after 1987.

FOOD STAMP OUTREACH

The low incomes received by many rural older people not only result in housing problems, but also in a reduced ability to purchase adequate food to maintain a healthy diet. Because diet is important in the maintenance of good health, it is imperative that persons with low incomes have access to Food Stamp benefits.

Outreach is needed to inform potential recipients of their eligibility for Food Stamps and to assist them in completing application forms. The social and physical isolation of rural older people makes outreach difficult but all the more essential in rural areas. Food Stamp participation rates are low among rural people, in part because they lack information about the program and in part because of their distance from food stamp offices. A 1984 USDA study found that 27% of nonparticipants lived more than nine miles from the nearest office; 31% indicated that getting to the food stamp office was a "big problem."

Last year, Congress approved an outreach demonstration project under the Food Stamp program. We hope that this Subcommittee will fund this effort at the full $5 million authorized level. A relatively small amount of money for this program can make such a large difference in the lives of families with low incomes.

Thank you again for the opportunity to present our testimony. We look forward to working with the Subcommittee to improve the lives of rural Americans of all ages.

AMERICAN CANCER SOCIETY
AMERICAN HEART ASSOCIATION
CENTER FOR SCIENCE IN THE PUBLIC INTEREST
PUBLIC VOICE FOR FOOD AND HEALTH POLICY
SOCIETY FOR NUTRITION EDUCATION

STATEMENT OF RANDOLPH C. HARRISON, CENTER FOR SCIENCE IN THE PUBLIC INTEREST

We thank the Subcommittee for this opportunity to offer testimony regarding the Food and Drug Administration's (FDA) fiscal year 1992 budget.

We would like to address the amount of funds FDA will need to carry out its new responsibilities under the Nutrition Labeling and Education Act (NLEA). This Act will require the most extensive overhauling of food labels since the Federal Food, Drug and Cosmetic Act of 1938 (FFDCA). In light of these added responsibilities we are recommending that FDA be appropriated $13.95 million, an increase of $10.95 million over fiscal 1991, specifically for food labeling efforts for the coming fiscal year. As Congress recognized last year with the passage of the NLEA, the need for comprehensive food labeling reform is critical and the provisions of the NLEA, if fully implemented, will greatly benefit the public health.

The Costs of Diet-related Diseases and the Benefits of Food Labeling Reform

The implementation of the NLEA is an essential public health measure. Each year, diet-related diseases lead to hundreds of thousands of deaths and cost tens of billions of dollars in health care costs and lost productivity. The American Heart Association estimates that the cost of cardiovascular diseases in 1991 will be $101.3 billion. Coronary heart disease and stroke claim over 500,000 and 150,000 lives, respectively, each year. The American Cancer Society estimates that 514,000 people will die from cancer this year. And the National Cancer Institute estimates that the costs of cancer will be $104 billion in 1991.

Food labeling reform will help reduce these costs. While the benefits of food labeling reform are difficult to quantify precisely, there is no doubt that better labeling will guide consumers toward foods that reduce the risks of developing diet-related diseases, and thus reduce medical costs, lost productivity, and lost income due to premature death or disability. As FDA surveys have indicated, Americans are aware of the diet/disease link and are trying to modify their diets accordingly, but have difficulty choosing the most healthful foods because of inadequate food labeling.

Improved labeling will also help the market system operate more rationally. Accurate nutrition labels and restrictions on misleading health and nutrition claims will result in more knowledgeable purchasing behavior that reflects consumers' needs. Food manufacturers will respond to these changes by producing even more healthful products. This development will, in time, also lead to improvements in the public's health. The bottom line is that the cost of properly implementing the NLEA today is minuscule compared to the sums that food labeling reform will save our country in the future.

FDA's New Responsibilities

Under the NLEA, FDA is to require mandatory nutrition labeling and to strictly regulate health and nutrition claims for all foods under its purview. Specifically, the NLEA requires FDA to design a new nutrition label, determining the adequacy of its content and format, and to conduct extensive consumer research and testing to ensure that the public will be able to understand the new label.

The agency must also issue regulations defining a host of nutritional descriptors, including such terms as "low fat," "light," and "high fiber." In addition, the agency must determine what types of health claims are to be allowed on foods and what requirements must be met in order to make those claims. FDA must also act within strict time frames on petitions filed by food companies requesting definitions of new descriptive terms and requesting permission to make additional health claims for foods.

The agency is further required to provide retailers with nutrition information on fresh fruit, vegetables, fish and seafood for use in voluntary labeling programs. FDA must then check the adequacy of these programs and, if lack of compliance is a problem, design and implement a mandatory nutrition labeling program for these products.

FDA must also conduct a nationwide review of almost all state, county and city laws dealing with food labeling and decide which laws should be preempted and which should be adopted by the agency.

In addition, all of this must be performed within strict deadlines that the agency is mandated to meet. First, FDA must issue proposed rules on a number of different aspects of food labeling, including label format, serving sizes, and use of nutrition descriptors and health claims, by November 8, 1991, one year after the law's enactment date. After receiving comments on the various proposals, the agency then has until November 8, 1992 to issue final rules.

We support the concept behind the deadlines in the legislation. All agencies move with dispatch if faced with an impending deadline, and food labeling reform is too important a public health issue to languish. FDA has shown that it is eager to accomplish this huge undertaking and we have every confidence that, given the proper resources, they will succeed. The agency should not be expected, however, to accomplish this task if it is not properly funded.

FDA officials believe that the agency will complete the first phase of this work - issuing the proposed rules - on time. In fact, the agency had begun working on many of these issues prior to the legislation's passage, and so has a head start on that phase. We are very concerned, however, that the agency will have difficulty completing the second phase of the work.

This second phase will require a considerable amount of work and it must be done in an extremely short time. FDA will have only 12 months from the final issuance of proposed rules until all final rules must be published. Undoubtedly, the amount of public comment to be received will be enormous, coming from consumers, industry, public health associations, and other government agencies. FDA is obligated to review all of these comments, many of which will surely offer insight into the perplexing issues that the agency must resolve. It would be a lost opportunity and a blow to the public health if the agency was not given adequate resources to accomplish its duties.

The enormity of this task is not lost on FDA staff. They have repeatedly stated that many other issues will be put "on the back burner" while the agency focuses on meeting the NLEA's deadlines. Currently, reassigning staff from other projects to work on implementation has been one way the agency has used to keep pace with its schedule. Simply reassigning staff, however, is a limited and inefficient stopgap measure. For example, some staff may not possess the appropriate expertise that is needed and, as the agency has suggested, reassignments weaken agency efforts in other areas.

Current Budget Requests are Inadequate

The Secretary of Health and Human Services has requested that FDA be given $770 million in fiscal 1992, an increase of $80 million. HHS's request for FDA's food labeling programs is $4.2 million, a $1.2 million increase over fiscal year 1991, an inadequate amount considering the added responsibilities facing the agency.

The 33 percent increase may, at first blush, seem healthy enough, but virtually all of it will be used to hire only 11 new employees at the Center for Food Safety and Applied Nutrition, bringing the total numbers of employees working on food labeling to less than 50. Agency officials have said that they need a total of 180 fulltime employees to work on this issue in the Center and in the field, 130 more than current budget requests will allow, if they are to meet the congressionally imposed deadlines. At costs of approximately $75,000 per employee, the additional 130 employees would call for an added increase of $9.75 million. This would mean a total increase for NLEA implementation funds of $10.95 million. We recommend that this Subcommittee appropriate this sum specifically for the implementation of the Act.

The Costs of Labeling Reform, in Perspective

The expenditure of this moderate sum will ensure the agency has the adequate resources to fulfill its mandate and will save our country much more money in the future. The Bush Administration has long noted the need for consumers to make "lifestyle changes" that have beneficial health effects. Food labels that provide clear, concise and accurate nutrition information will allow consumers to make the dietary changes health experts recommend to decrease their risks of diet-related diseases. In turn, these actions will have a large return in public health care savings. But it is crucial for the government to devote adequate resources up front to ensure that these food labeling reforms are fully implemented.

Given the advantages to be gained by the proper implementation of the NLEA, labeling reform is not burdensome for taxpayers. FDA's entire budget request for fiscal year 1992 of approximately $224 million for all food regulation and enforcement activity -- including not just labeling but regulation of food additives and contaminants, testing and inspections, and responding to emergencies -- barely exceeds 80 cents per person per year. The additional cost of ensuring more complete and accurate nutrition information on all foods would be minimal. Even a small public health benefit from some labeling reforms would justify their entire cost.

Better food labeling is an investment that Americans can no longer afford to forego. The Congress recognized this with the unanimous passage of the Nutrition Labeling and Education Act. Now this essential public health measure should be implemented expeditiously and thoroughly. We hope that the Subcommittee will see fit to provide the FDA with the funds it needs to carry out this important task.

AMERICAN DIETETIC ASSOCIATION

STATEMENT OF MARY ABBOTT HESS, PRESIDENT, THE AMERICAN DIETETIC ASSOCIATION AND NANCY E. SCHWARTZ, PRESIDENT, SOCIETY FOR NUTRITION EDUCATION

The American Dietetic Association, the Society for Nutrition Education, and the American Heart Association, all work to promote optional health and nutritional status of the population through support of various nutrition education programs. To achieve our missions, we depend on the high quality nutrition education research, publications, and food composition data that are generated by the Human Nutrition Information Service (HNIS) of the U.S. Department of Agriculture. We are pleased to contact you regarding appropriation for HNIS before your subcommittee. We request that these comments become a part of the public record and ask for your support on the following matter.

On March 22nd the Subcommittee on Agriculture, Rural Development, and Related Agencies heard testimony from Sue Ann Ritchko, Administrator of the Human Nutrition Information Service (HNIS) of the U.S. Department of Agriculture. We are writing to you today to endorse Ms. Ritchko's testimony and to encourage you to appropriate $12.6 million for Fiscal Year 1992. Although this is an increase of $2.7 million over 1991, our associations urge you to support this important increase.

For nearly eight years, our Associations have been promoting the National Nutrition Monitoring legislation before Congress. Last year, it was finally signed into law and designated as P.L. 101-445. The passage of this bill was a tremendous victory for a nutrition-conscious nation; however, HNIS must now be given enough funding to implement this expanded responsibility.

What will these extra monies mean to this Department? It means HNIS can now begin to lay the groundwork for the 10 year survey that is so long overdue; the last comprehensive survey of the nutritional status of Americans was in 1977. The direct benefits of measuring the nutritional wellness of Americans are obvious. Education about food has changed our eating patterns dramatically since 1977 and this shift must be measured. Only by knowing what Americans are consuming, can we project health patterns for the future and dietary guidance that should be made by the American Government.

Only by requiring HNIS and DHHS to work together on this important project, will we truly be able to continue to link diet to health and make valid recommendations to the public.

A second critical responsibility designated in the law is that target groups must now be surveyed: preschool and school-age children, pregnant and lactating women, elderly individuals, blacks, Hispanics, Native Americans, homeless,and the military. Surveying these added targeted populations will give us a true "snapshot" of the success (or further need) of many federal monies that go into feeding programs.

Our three organizations have steadfastly supported the legislation calling for the development of the Nutrition Monitoring Advisory Council which will provide advice from experts in the private sector in the development of the ten year survey. We look forward to the appointment of this nine member panel and the opportunity to comment on the ten year plan they will propose.

Recently, the Public Health Service of the Department of Health and Human Services released a report entitled Healthy People 2000. This report proposes "a national strategy for significantly improving the health of the Nation over the coming decade. It addresses the prevention of major chronic illnesses, injuries, and infectious diseases." Our organizations believe diet will play a major role in this strategy and only by having an accurate data base on food consumption will we be able to reach the objectives of a healthy nation.

The American Dietetic Association, the Society for Nutrition Education, and the American Heart Association appreciate the opportunity to comment on the appropriation for the HNIS. We hope your interest in WIC and other feeding programs will translate into support for a strong data base for the nation. Thank you for your attention to this matter.

Sincerely,

Mary Abbott Hess

Mary Abbott Hess, MS, RD
President, The American Dietetic Association

Nancy E. Schwartz nc

Nancy E. Schwartz, PhD, RD
President, Society for Nutrition Education

STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION

The American Farm Bureau Federation is the nation's largest general farm organization with a membership of over 3.8 million member families in 50 states and Puerto Rico. Farm Bureau members produce almost every type of commodity grown commercially in this country. Our policy is developed by producer members at the county, state and national levels of the organization.

OVERVIEW OF FARM BUREAU'S BUDGET POLICY

Farm Bureau's general position on the budget has remained virtually unchanged over the past several years. We support a freeze in total federal spending at the previous year's appropriations level. Spending restraint, rather than tax increases, must be imposed to balance the budget.

If this prescription had been followed, the federal budget already would be in balance, as revenue growth from an expanding economy would have caught up to federal outlays. However, this was not the case, and we are now faced with budget deficits in the magnitude of $300 billion annually.

The effect of the failure to impose spending restraint in all areas of spending, including entitlements, has fallen hard on agricultural appropriations. In general, agricultural appropriations have been frozen at relatively the same level in recent years. Due to inflation, this practice has, in fact, amounted to cuts at a time when other federal programs have continued to grow.

While all government spending programs bear close scrutiny to determine their worthiness for continued funding, many worthwhile programs in agriculture have been reduced in real and current dollars. We also note that the 1990 budget agreement, which required an additional $13.6 billion reduction in agriculture over a five-year period, compounds the problem that faces agricultural programs. These reconciliation cuts come on top of a $1.5 billion reduction in farm program spending in last year's budget.

In the minds of many in the media, Congress and the general public, agriculture is viewed as a major contributor to the deficit problem the nation faces. This is not true. As the subcommittee is well aware, total USDA spending constitutes about 4 percent of the federal budget. Farm price and income-support spending constitute only a little over 1 percent of federal spending and has been declining. Those who continue to subscribe to the notion that agriculture is a major budget culprit cling to the 1986 figures of nearly $26 billion in farm program spending. These critics either cannot or will not recognize that agricultural spending is half the amount it was five years ago, and is now in the $9 billion to $11 billion range.

The 1990 budget agreement puts the adequacy of agriculture funding even more in doubt. We recognize that the subcommittee cannot do anything about the 1990 budget package, but we would like to point out a major problem it causes for agricultural programs.

The cap for domestic discretionary spending means that for any increase in an appropriations bill to occur, there must be a spending reduction in other areas of the same appropriations bill, or in other appropriations bills within the domestic discretionary category. For example, an appropriated account such as agricultural research and extension could be increased by taking money from another agricultural area like animal and plant health, or by decreasing another appropriations bill. If a spending cap is breached for domestic discretionary spending, all areas within the category are then subject to across-the-board sequester. All programs in the category suffer from sequestration regardless of fault. Also, under the new pay-go provisions for entitlement spending, spending increases in one entitlement either must be offset by a cut in another entitlement program or a tax increase. We believe farm program spending would be a tempting target for entitlement offset, just as we believe agricultural appropriations will be seen as an offset for higher non-agricultural appropriations.

We are concerned about this very real threat to agricultural programs. While we recognize it is not within the subcommittee's control to modify constraints of the budget agreement, we do ask you to be aware of the problems agricultural programs face, and to mitigate harsh effects wherever and whenever possible.

The bottom line is we see continued pressure on agriculture to defend its appropriations and entitlements, like farm program payments, from those who would like to use agriculture's resources to fund non-agricultural spending.

COMMENTS ON SPECIFIC ITEMS WITHIN THE BUDGET

1. USER FEES

The objective of federal and state meat and poultry inspection programs is to provide consumers a supply of wholesome meat and poultry products. This is a service to consumers and costs should be paid from general revenue funds. We oppose user fees to finance federally-mandated inspection programs, and therefore object to the FY 1992 administration budget's user-fee proposals.

2. ANIMAL DAMAGE CONTROL (ADC)

The administration's FY 1992 budget fails to provide the necessary funding for the Animal Damage Control program. Farm Bureau supports restoration of funding to the FY 1991 level of $24.6 million.

The ADC program is an important and necessary government service to control wildlife and pest damage to agriculture, other wildlife, aquaculture, forest range and other natural resources; to protect public health and safety through control of wildlife-borne diseases; and to provide wildlife control at airports.

The proposed 22 percent budget reduction will render the program ineffective. Since the transfer of the program from the Department of the Interior to the USDA, severe budget constraints have caused the ADC to delay important investments in employee training and recruitment, equipment rotation and replacement, and new methods research. Unless these investments are made quickly the ADC program will be severely limited in its ability to provide long-term services to its wide spectrum of constituents, especially those in agriculture whose crops and livestock are lost every year to uncontrolled wildlife.

3. ANIMAL HEALTH

As the subcommittee knows, Farm Bureau has been a consistent and strong supporter of adequate funding for animal health programs like brucellosis eradication. We continue this support, and ask the subcommittee to look toward the day when this disease will be conquered. However, other diseases just as serious will continue to plague animal agriculture.

With this continuing threat in mind, Farm Bureau asks the subcommittee to consider the need for a core animal disease and pest control/eradication program through USDA's Animal and Plant Health Inspection Service (APHIS). There is a need to retain an APHIS infrastructure with the capability to respond to outbreaks of exotic foreign livestock and poultry diseases and pests that can be phased in when brucellosis in cattle and swine and tuberculosis in cattle are eradicated.

The goal for eradicating these diseases is reachable. Their successful conclusion will eliminate three long-term activities that have cost producers and taxpayers millions of dollars. Both of these diseases have human health implications.

Federal bovine brucellosis and tuberculosis and porcine brucellosis program resources have been utilized over the years for other unforeseeable disease control and eradication emergency efforts such as Venezuelan equine encephalomyelitis, virulent Newcastle disease, scabies, hog cholera, vesicular exanthema, vesicular stomatitis and avian influenza and to support the total APHIS program. Had there not been a diversion of brucellosis and tuberculosis funds, these diseases most likely would have been eliminated by now.

We believe that a core animal disease and pest control/eradication program through APHIS makes sense to producers and would be an efficient use of tax dollars.

Scrapie Eradication: Money spent on the prevention of animal diseases is an investment in the future well-being of our country. Through a negotiated rule-making process, USDA has identified a program which can be effective in identifying and reducing scrapie in the sheep flock. This program would include a significant component of producer funding. We urge the subcommittee to provide adequate funding to supplement these producer funds.

4. RESEARCH

Farm Bureau is a strong advocate of research. The president's budget includes a request to fund the Natural Research Initiative on Agriculture, Food and the Environment in 1992. Funding this initiative will indicate the congressional commitment to a productive agricultural sector.

Two other particular areas which we highlight for the committee are IR-4 research on minor-use pesticides including funds for data gathering and research money for development of improved integrated pest management production systems. While these programs do not receive a great deal of public attention, the benefits to producers through decreased input costs and increased productivity are significant. We ask the subcommittee to give them careful consideration.

5. ORGANIC CERTIFICATION

The 1990 farm bill provides for a program to certify growers, processors and retailers of organic products. Such a certification program is important to both consumers and producers. If the production of organic foods and agricultural products is to be a realistic income opportunity for farmers, we must have regulatory guidelines and programs which clearly define the size and shape of the playing field. AFBF urges you to provide funding adequate to formulate and administer standards for organic production practices and organic foods as outlined in the 1990 farm bill.

6. LIMITATION ON FARM PROGRAM PAYMENTS

The FY 1992 administration budget contains a limitation on farm program payments. The budget would eliminate farm program payments to individuals with more than $125,000 in adjusted gross non-farm income. This is effectively a means test for farm program participation. We oppose this budget proposal.

Farm Bureau recognizes that the authorizing committee, rather than the appropriations committee, has the jurisdiction to make this change in farm law. However, we draw the matter to your attention in case attempts are made later to add an amendment to the appropriations bill to incorporate this budget proposal.

We note that very few farmers would be subject to the means test proposed by the Administration. However, this proposal is a precedent which should not be enacted. It would become too easy to make further restrictions in the future. Each restriction has the effect of driving participants outside the program. The farm program itself would become weakened and ineffective as farmers leave the program. This is a highly undesirable result, and we urge the subcommittee to oppose attempts to means test the farm program.

We appreciate the careful attention the subcommittee has always given to the needs of agriculture. Your attention is needed even more as agriculture faces the challenges of the new budget law, the first year operation of the 1990 farm bill, and what we hope will be the successful and beneficial conclusion to the multilateral trade negotiations.

Thank you for the opportunity to offer these comments.

AMERICAN OAT ASSOCIATION

STATEMENT OF PAT HENDERSON, EXECUTIVE DIRECTOR

The members of the American Oat Association appreciate the opportunity to submit a statement regarding fiscal year 1992 oat research appropriations.

The following is a brief review of the 1992 Oat Research Appropriations request.

o An additional $150,000 for the national fielding of the oat germplasm enhancement plan through Aberdeen, Idaho.

The plan documents the need for oat research in the areas of:

- o Nutritional quality, particularly related to fiber.
- o Reduction of losses due to lodging.
- o Protection from devastating diseases, such as crown rust and yellow dwarf.
- o Efficiency of, and potential for, production.

o An additional funding of $100,000 for the oat and barley on-going research at the Agricultural Research Service, Cereal Crops Research Unit (ARS/CCRU) at Madison, Wisconsin. The oat research share of the amount is $ 50,000.

o An ARS/USDA position at Madison, Wisconsin in the amount of $200,000 for a chemist to research the synthesis and physiochemical properties of oat and barley fiber as they relate to human nutrition.

Enclosed find additional information regarding each request.

February, 1991

OAT GERMPLASM ENHANCEMENT PROGRAM
Aberdeen, Idaho

The U.S. Department of Agriculture's Agricultural Research Service completed the construction of the National Germplasm Research Facility at Aberdeen, Idaho, and 1990-1991 appropriations included $ 150,000 to begin efforts described in the Germplasm Enhancement Plan.

Our 1992 appropriation request is for $ 150,000, which when added to the $ 150,000 already appropriated, will meet the estimated annual needs for the Germplasm Enhancement Plan. The Oat Crop Advisory Committee, representing the oat research community in the United States, prepared a National Plan for Oat Germplasm Enhancement in 1983 which was revised in 1990. The Plan includes documentation by the oat research community for a coordinated national effort in oat germplasm enhancement concerned with nutritional quality, particularly fiber; reduction of losses due to lodging; protection from devastating diseases, such as crown rust and yellow dwarf; and efficiency of, and potential for, production. The Plan called for coordination of this effort at the National Germplasm Research Facility in Aberdeen, Idaho, where the staff is responsible for conducting research concerned with the acquisition, maintenance, evaluation and enhancement of the National Small Grain Collection.

The 1992 appropriation request is for national fielding of research projects to meet the objectives of the Germplasm Enhancement Plan. The staff at Aberdeen, Idaho would be specifically involved in coordination of the national effort, including allocation of ARS funds in cooperating locations. In addition, Aberdeen could be utilized as a location for the increase of segregating populations to be selected and evaluated in a diversity of environments outside of Idaho, intercrossing of selected parents in a national program, and, because of its favorable field environment, as a location for evaluation of yield potential and quality components. Recent staff additions and laboratories available in the new facility will also permit the location to participate in state-of-the-art gene mapping research as well as research concerned with new approaches to gene transfer.

January 1991

Proposed Position Description
Research on Quality of Oat and Barley (Fiber emphasis)
Cereal Crops Research Unit, Agricultural Research Service
U. S. Department of Agriculture, Madison, Wisconsin

A Research Chemist is needed to do research on the synthesis and physicochemical properties of oat and barley fiber and other bioactive components as related to human nutrition. The properties of the mixed-linked ß-glucans, found in high concentration in oat and barley, on lowering LDL-cholesterol, a high risk factor in heart disease, are now becoming well documented. The pathway and regulation of their synthesis in the plants remains to be elucidated. The proposed scientist would study the component polymers, physicochemical properties, cellular distribution, and associations with other cellular constituents of ß-glucans in oats and barley to determine characteristics important for efficacy. In collaboration with Dr. David Peterson and Dr. Ronald Skadsen of the Cereal Crops Research Unit incumbent will study the physiology, biochemistry, and genetic regulation of ß-glucan synthesis and degradation in oat and barley. This scientist will form an integral part of an ARS team aimed at enhancing oat for ß-glucan. This effort now consists of germplasm evaluation at Madison (Dr. David Peterson) and Aberdeen, Idaho (Dr. Darrell Wesenberg) and a more detailed investigation of selected lines at Albany, California (Dr. Antoinette Betschart).

The initial focus of the proposed position will be to compare the primary and secondary structure and linkage relationships of oat and barley endosperm ß-glucan by the use of specific enzyme degradations, HPLC, GC-MS, and NMR. Differences between oat and barley ß-glucan will be determined to account for the greater solubility of the former. Methods to scale up preparation of specific ß-glucan fractions will be developed (utilizing expertise and pilot plant facilities at NRRC, Peoria) to provide adequate material for feeding studies with model systems and humans, to be conducted by scientists at the Beltsville Human Nutrition Research Center.

The results of these studies will define the essential properties of the oat and barley fiber that are important for human nutrition. Also, they will assist plant breeders in developing superior genotypes. For barley, this may mean developing separate varieties for food use, as high ß-glucan in malt is disadvantageous for brewing.

Other bioactive components of barley and oat will be researched in a similar manner. Of particular interest are certain antioxidants whose physiological properties are now becoming recognized. The tocotrienols, which are powerful inhibitors of cholesterol synthesis, are present in brewers spent grains. Essentially nothing is known of the regulation of their synthesis in the grain or genotypic variability that could be exploited in a plant breeding program.

The Cereal Crops Research Unit has adequate laboratory space for an additional scientist, and some shared facilities are available on the University of Wisconsin Campus (NMR, GC-MS). The position would need to be funded for at least $250,000, preferably with an initial start-up package for equipment.

January 1991

Documentation of Need for Additional Funding for Oat and Barley Quality Research

Cereal Crops Research Unit, Agricultural Research Service
U.S. Department of Agriculture, Madison, Wisconsin

Research on quality improvement at the Cereal Crops Research Unit (CCRU) is divided into four projects, each led by one scientist:

Physiological, Biochemical and Molecular Regulation of Quality Factors in Oat. Dr. D.M. Peterson, 100% Oat (includes service work).

Development of Refined Evaluative Methods for Oats and Barley. Dr. R.W. Skadsen, 60% Barley, 40% Oat.

Physiological and Biochemical Regulation of Carbohydrate Metabolism in Cereal Grains. Dr. C.A. Henson, 70% Barley, 30% Oat.

Research on Malting Quality Improvement in Barley. Dr. B.L. Jones, 100% Barley (includes service work).

The congressionally appropriated funds for the CCRU pay for salaries of the scientists, technicians and clerical employees, the costs of maintaining and operating the facility, and "discretionary" costs. The latter include supplies, new equipment, and temporary appointments such as graduate students, post-docs and student labor. In the Midwest Area, a level of discretionary funds of $20,000 per scientist is considered minimally adequate. Currently (FY91), the CCRU has only $9157 per scientist in discretionary funds. This shortfall will need to be addressed in the near future. Otherwise, it will be impossible to continue the same level of commitment to research and service.

STATEMENT OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

This testimony is submitted on behalf of the American Psychological Association (APA), a scientific and professional organization representing over 108,000 psychologists, on the fiscal year 1992 budget for the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture.

Included among APA's membership are research psychologists who use animals in their research -- research that increases our understanding of cognition and memory, mental illness, drug abuse and addiction, and human and animal behavior. APA has been concerned about the care and welfare of laboratory animals since 1925, when a committee was formed to help set policy for the humane use of animals in psychological research. Good science requires good animal care.

Scientists are morally and ethically obligated to ensure the humane treatment of the animals that are necessary for research. Scientists are also responsible to the public, who are concerned about the care and use of animals in research. The inspections carried out by APHIS at over 1,300 research facilities are an important part of assuring the public that scientists are meeting this obligation. Unannounced APHIS inspections at animal research facilities ensure compliance with the letter and spirit of the Animal Welfare Act.

This testimony is submitted on behalf of the American Psychological Association (APA), a scientific and professional organization representing over 108,000 psychologists. We thank you for the opportunity to comment on the fiscal year 1992 budget for the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture.

Included among APA's membership are research psychologists who use animals in their research. Their work, which increases our understanding of cognition and memory, mental illness, drug abuse and addiction, and human and animal behavior, is directly affected by the quality of the inspection process as administered by APHIS. As part of its responsibilities, APHIS oversees the nation's animal research facilities to ensure compliance with the federal animal welfare regulations -- regulations which were recently finalized in response to the 1985 amendments to the Animal Welfare Act.

The Animal Welfare Act, passed in 1966 and most recently amended in 1985, regulates the use of animals in research and other areas. APHIS enforces the act through registration, licensure, and unannounced inspections of the nation's research animal facilities. APHIS inspectors are asked to assess compliance with standards for handling, housing, feeding, sanitation, veterinary care and psychological well-being of animals used in research.

These standards, as promulgated by APHIS, have recently undergone extensive changes which require, among many other things, sophisticated assessments of behavior in nonhuman primates. The Congressionally mandated requirement that standards be set to provide for the "psychological well-being" of nonhuman primates in research, requires inspectors to judge behavioral norms in the 30 different species of primates used in the United States.

As a result of the new regulations, there will also be increased demands on the time of inspectors as they are required to review institutional plans in detail and judge their applicability to the new requirements. It is clear that inspections will now take more time, and require a more sophisticated assessment of animal behavior, than in the past. Not only does APHIS need more qualified inspectors, but it needs to implement a training and career development plan for its inspectors to ensure their competence to judge the "psychological well-being" of nonhuman primates.

For these, and other reasons, APA recommends that $12 million be appropriated for FY92 for the APHIS animal welfare inspection program. Congress was generous in last year's appropriations for this program, and that rate of increase needs to be sustained. The Administration's FY92 budget request of $9.3 million represents a 4% decrease over the FY91 funding level. This is not the time to cut back.

APA is especially concerned about the quality of the inspection process and the training of inspectors. This year, with an increase in their FY91 funds, APHIS was still unable to schedule more than one training session for its animal welfare inspectors. Although some of their inspectors have training and experience in nonhuman primate behavior, most do not, and they need more than one training session to take full advantage of the latest scientific information in this rapidly changing field of animal behavior.

APA also believes that as scientists, we are morally and ethically obligated to ensure the humane treatment of the animals that are necessary for research. Scientists are also responsible to the public, who are concerned about the care and use of animals in research. The unannounced inspections carried out by APHIS at research facilities are an important part of assuring the public that scientists are meeting this obligation.

IMPACT OF ADMINISTRATION'S BUDGET RECOMMENDATION

The administration's requested 4% cut in funds for the animal welfare program of APHIS is misguided. This level of funding is inadequate to meet the agency's growing responsibilities, for a number of reasons.

NUMBER OF INSPECTORS

Working with limited resources, APHIS has sought to hire and train inspectors for its animal welfare program. The inspectors who visit the nation's research institutions are veterinarians. These highly trained inspectors are needed due to the complexities of the job in assessing the treatment, care and handling of the many species of animals used in research. APHIS needs more of these qualified inspectors to ensure even the minimum number of inspections mandated by Congress. In FY89, the last year for which figures were available, the average number of inspections per institution was 1.22. Although this figure should improve for FY90, it will still fall far below the optimum number of inspections set by APHIS itself -- 4.0 inspections per year. This goal seems less and less achievable since not only research institutions must be inspected, but also licensed dealers, exhibitors, and intermediate animal handlers (such as airline carriers).

More inspectors will also be needed as the average time per inspection increases due to the increased workload required under the new Animal Welfare regulations. Inspectors will be examining records in more detail, as well as assessing the institutional plans for implementing the new requirements for exercise for dogs and the psychological well-being of nonhuman primates used in research. If, as hoped, inspectors spend more time in training, moreover, and those in the field are re-trained, there will have to be an increase in their numbers if adequate enforcement is to be maintained at even current levels.

INSPECTOR TRAINING

As important as the number of inspectors is the training they receive to enforce a complex set of regulations. Inspectors will now be asked to judge the psychological well-being of the 30 species of nonhuman primates used in research in the United States, and judge the adequacy of institutional plans. It is crucial that APHIS inspectors receive adequate training, and have access to career development courses, to obtain up to date information on the complex behavior of nonhuman primates.

Effective enforcement of the Act is a difficult task that demands significant expertise in behavioral and psychological variables, and laboratory animal medicine, for the various species of animals used in research. APA is particularly concerned about how APHIS inspectors will assess the psychological well-being of nonhuman primates used in research. This is mandated in the recently finalized animal welfare regulations. It requires inspectors to make sophisticated judgements about animals with little or no specific training in the behavioral sciences. Adequate training will be costly, time consuming, and require frequent re-training to take advantage of the latest scientific information.

RECOMMENDATIONS

APA strongly urges that $12 million be appropriated to APHIS's animal welfare program to help maintain a consistently high quality inspection program. This funding is required if APHIS is to fulfill its responsibilities under the Animal Welfare Act.

Last year Congress recognized the need for a strong Federal program to enforce national standards of laboratory animal care and use. We ask you to provide funds now, not only to preserve the status quo, but to assure APHIS's ability to enforce valid and consistent standards.

APA recommends that $12 million be appropriated for FY92 for the APHIS animal welfare program to:

1. Maintain the current number of inspectors and hire additional numbers to ensure adequate inspection over 6,900 registered and licensed animal facilities, and;

2. Provide for the necessary training of APHIS inspectors to cover the many species of animals used in research in the U.S. -- animals which are vital to biomedical and behavioral research.

APA shares with the scientific community a commitment to a strong animal welfare program. We believe a vital component of this commitment is an adequately funded animal welfare program at APHIS.

AMERICAN SOCIETY FOR MICROBIOLOGY

STATEMENT OF RUDY J. WODZINSKI, PH.D., CHAIRMAN, COMMITTEE ON AGRICULTURAL, FOOD AND INDUSTRIAL MICROBIOLOGY AND KENNETH I. BERNS, M.D., PH.D., CHAIRMAN, PUBLIC AND SCIENCE AFFAIRS BOARD

The American Society for Microbiology (ASM) wishes to submit for your consideration the following comments on the fiscal year (FY) 1992 basic research budget for the U.S. Department of Agriculture (USDA). The ASM is the single largest biological science organization in the world with an active membership of over 38,000. Many of these individuals are engaged in agricultural research and are recipients of awards administered by the USDA. Our comments are directed primarily to the National Research Initiative Competitive Grants Program (NRIGCP) and research activities and needs within the Agricultural Research Service (ARS).

The ASM is encouraged that last year's Congress recognized the importance of the Board of Agriculture (BOA) research initiative entitled "Investing in Research: A Proposal to Strengthen the Agricultural, Food and Environmental System" and appropriated $73 million for FY 1991 for the NRICGP. The increase over FY 1990 is appreciated but it still falls short of the needs to meet the objectives of the program. These are necessary if U.S. agriculture is to remain competitive on a world-wide basis. We have reevaluated NRICGP and the BOA's recommendation and conclude that the original request for $500 million per year for NRICGP is justified, realistic and necessary.

We recommend that the full $500 million for the national initiative be funded as soon as possible. We recognize that funds are limited and that the full funding in FY 1992 will not occur. ASM strongly urges that Congress honor the commitment to the program and that the FY 1992 budget for NRICGP be at a level of $200 million on a non-earmarked basis.

We do not believe that the Administration's request for FY 1992 of $125 million of non-earmarked funds and $25 million for earmarked funds is adequate to maintain the U.S. technological superiority in agriculture. We believe that the lead is eroding. Many countries have implemented agricultural practices developed in the U.S. and have become self-sustaining in their food production. Exports are declining. The U.S. has become a net importer of processed foods. New discoveries in the biological sciences promise significant improvements in the production, quality and safety of food products. Many countries, including some developed and most developing nations, have recognized and invested in that potential. Australia, Canada and the EC all outspend the U.S. in agricultural research. They are gaining the capacity to expand production and to lower the per unit cost for agricultural products.

The funding of fundamental programs inherently contain funds that are used to train graduate and post-doctoral students. The high proportion of funds from NRICGP grants to university investigators is paid out in the form of stipends to the students. In 1991, the training of agricultural scientists in new techniques is of greater import than in the past. A recent study by the NSF indicates that agricultural scientists are an aging population and that substantial attrition will occur in the number of agricultural scientists if the training of young scientists in agriculture is not increased. A recent publication by NSF, "Profiles - Agricultural Sciences: Human Resources in Funding" (NSF 89-319), summarizes the current status of trained agricultural scientists. 25% of the agricultural scientists in this country are over 50 years of age, as compared to 20% for all other sciences. 12% of the agricultural scientists are between the ages of 40-49, as compared to 24% of all other sciences. The agricultural sciences have a higher age population and many will retire soon. These figures indicate that there will be a shortage of agricultural scientists for the available jobs in federal, academic and private research laboratories. They also indicate that a high of proportion of present day agricultural scientists are probably not trained in modern technologies. This situation must be rectified. The same situation exists for the scientific equipment and the infrastructure necessary for performing research in the agricultural sciences. There is an additional aspect that is subtle but greatly influences our capacity to be competitive in agriculture on a global basis. If other countries spend more than the U.S. on fundamental research in agriculture, then they train and will have more practicing young scientists trained in the new technologies. If this situation is not rectified, we can expect to import more agricultural commodities from abroad and will have to face a shrinking market for our agricultural products. A sound, fully funded NRICGP is truly an investment in agriculture.

The indirect cost cap of 14% that was imposed on all competitive research grants in FY 1991 should be rescinded. The cap, which in effect results in universities subsidizing federal research, causes severe hardship on private and state universities. It in effect precludes many university researchers from applying for these grants. It presupposes that each university has available money to support the federal effort. This cap comes at a time when there is a lack of funds at private and state institutions due to the economic downturn. In fact, many universities have been directed to plan for severe cuts in their teaching programs due to lack of revenues. This cap, if it continues, will cause further destruction of the infrastructure of the agriculturally-oriented universities throughout the U.S. The need for upgrading university facilities and for purchasing modern scientific equipment is a matter of record and has been investigated by Congress a number of times. It is ironic that NSF and NIH have programs for upgrading the scientific equipment in universities whereas agricultural researchers are directed to subsidize research. The indirect costs are real and have been recognized as such in the report by Bromley and Packard. The ratio of indirect costs to direct costs in relatively stable throughout federal research, 31.1%-31.6%. The ASM implores Congress to recognize the real costs and not to impose an unfair burden on agricultural researchers.

The ASM also strongly supports and recognizes the need for expanded research by the ARS on food safety. In May 1989, the Institute on Food Technology published the results of a workshop with a consensus of agreement by a number of professional societies that the number one problem in food safety was with the microbiological aspects of food. They stated that this problem was greater than any pesticide threat. The issues that were raised because of contamination in various processes with salmonella and other microbiological contaminants, and especially with mycotoxins in food grains and feed grains, emphasizes the need for an expanded research role in food safety by the ARS. The ASM supports the need for a $9.6 million increase in food safety within ARS for research on these important problems. The ASM also supports the ARS proposed increase to study water quality, integrated pest management, conversion of biomass to alcohol fuels, global changes, plant science and animal science. The ASM recommends the expenditure of $46.1 million for the major modernization of ARS buildings to correct health and safety code violations.

In summary, the ASM recommends funding of the NRICGP at a level of $200 million for FY 1992. We endorse the request for ARS to increase their research by $39.1 million for FY 1992 and are in full agreement that the modernization and updating of ARS facilities is necessary to correct health and safety deficiencies.

Sincerely,

Rudy J. Wodzinski
Rudy J. Wodzinski, Ph.D.
Chairman, Committee on Agricultural,
Food and Industrial Microbiology,
PSAB, ASM

Kenneth I. Berns
Kenneth I. Berns, M.D., Ph.D.
Chairman, Public and Scientific
Affairs Board, ASM

STATEMENT OF THE AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS

The American Society for the Prevention of Cruelty to Animals (ASPCA), this country's first humane society, with a membership of over 400,000 nationwide, is pleased to share with you our interest in a number of programs within the jurisdiction of the United States Department of Agriculture (USDA).

The ASPCA's purpose, as stated by its founder Henry Bergh, is "to provide effective means for the prevention of cruelty to animals throughout the U.S." Thus, we are concerned with animals living in the wild, in laboratories, zoos, circuses, or other exhibitions, those being raised for food, or as pets.

It is our commitment to alleviate pain and suffering for all animals that motivates us to testify before you today to encourage you to support funding for a number of very important programs of interest to our membership. Specifically, we urge you to support a funding level of $25 million for enforcement of the Animal Welfare Act; of which $3.5 million is needed according to the USDA to extend coverage of the Animal Welfare Act to birds, rats, and mice. In addition, the ASPCA's request that you appropriate funds to implement two programs authorized in the 1990 Farm Bill: $40 million for the Sustainable Agriculture Research and Education Program; and $200,000 to be used to set up the National Organic Standards Board, part of the Organic Foods Production Act of 1990.

The Animal Welfare Act is the only comprehensive law protecting warm-blooded animals used or intended for use in experimentation, research, testing, exhibition, or as pets. Thus, it is important that compliance with the law be ensured. While it is the mandate of the USDA to enforce the Act, the funding that they receive must be sufficient to allow the agency to properly do their job.

Inspections of dealer sites by the Regulatory Enforcement and Animal Care Section of the Animal and Plant Health Inspection Service (APHIS) were down by 63% from 2,643 in 1988 to 980 in 1989. Research facilities averaged just 1.2 visits and some licensees such as exhibitors were never inspected. And now pursuant to new regulations, APHIS will also be responsible for inspecting farm animals when they are used for purposes within the scope of the Animal Welfare Act and for enforcing the regulations relating to exercise for dogs and living quarters for primates which were promulgated pursuant to the 1985 amendments to the Animal Welfare Act.

In addition, the ASPCA has long supported the extension of enforcement of the Animal Welfare Act to include birds, rats, and mice. In a preliminary analysis of the fiscal impact of including these species, the USDA estimates that an additional $3.5 million will be required. They estimate that 1,735 (about 71%) of the currently registered research sites house and use rats and mice, and that an additional 2,324 new sites would be required to register and comply with the regulation. In addition, 317 (approximately 13%) of the facilities currently inspected also house birds. APHIS estimates that 2,302 new bird sites will have to be inspected. Additional staff needed by APHIS in order to extend coverage to these three species is estimated at 50 inspectors, a minimum of 34 veterinarians, and 16 animal health technicians.

Furthermore, the ASPCA was involved in securing passage of two important provisions contained in the 1990 Farm Bill that represent an innovative approach to farming. We have felt for some time that more attention must be given to farming systems that are ecologically balanced and safe to the environment and the consumer and humane to animals. Thus, we supported the provisions of the 1990 Farm Bill that re-authorized the Sustainable Agriculture Research and Education Program. The ASPCA has stated for some time that animal husbandry practices which depend on subtherapeutic doses of antibiotics and other drugs have the potential to threaten the health of the consuming public, the environment, and the health of the animals. Therefore, we were happy to support the funding level of $40 million contained in the 1990 Farm Bill, and urge you to do the same when appropriating funds now for the Sustainable Agriculture Research and Education Program.

Although the Organic Foods Production Act is intended to be self-supporting without requiring federal funds once it is operational, $200,000 is needed initially by the National Organic Standards Board to develop guidelines to be used by those producers wishing to participate in the program. We therefore urge you to appropriate this sum.

Finally, we come to this committee asking for a reduction in the funding of one particular program within your jurisdiction and agree with the Administration's proposed reduction of $4,200,000 for the Animal Damage Control program (ADC). We support non-lethal alternative methods of animal control and oppose the unnecessary and outdated methods used by the ADC. We know that other methods of control exist and ask that money be made available for research into non-lethal projects which are economical, humane, and effective.

In sum, the ASPCA urges you to appropriate $25 million to the USDA for the more effective enforcement of the Animal Welfare Act: $40,000 for the Sustainable Agriculture Research and Education Program; and $200,000 for the National Organic Standards Board.

Thank you for your consideration and support.

STATEMENT OF THE AMERICAN SOYBEAN ASSOCIATION

The American Soybean Association is a national non-profit organization representing U.S. soybean farmers with members in 29 states. ASA seeks to increase the opportunity for U.S. farmer profitability through its market development, research, public affairs and trade policy programs.

This year, as we work toward the implementation of the 1990 Farm Bill and seek further action to eliminate trade restrictions around the world, tremendous opportunities await farmers in the United States. Properly funded programs must be in place to allow the U.S. farmer to compete and profit in our rapidly changing world.

Agricultural Research

A good program of agricultural research is the foundation of U.S. agriculture. A solid research and information distribution system is vitally important in enabling U.S. farmers to compete in today's international marketplace.

American soybean farmers have historically placed major emphasis on the value of agricultural research. Farmers have sought to increase their competitiveness, expand consumer use of soybean products, reduce production costs and improve the profitability of soybean production.

U.S. soybean farmers have invested their own funds in soybean research through farmer-controlled state checkoff programs. With the pending implementation of a national checkoff, soybean farmers will be able to make a larger investment in research. However, while U.S. soybean farmers are offsetting some of the cost of soybean research, they cannot and should not do it all. All of society benefits through an enhanced qualify of life through a profitable soybean industry. Federal funding of soybean production research and new use research is essential for profitable soybean farming.

Soybean quality -- determined by composition and foreign material -- is a vital issue to U.S. soybean growers. Low quality damages the competitiveness of U.S. soybeans internationally and reduces the opportunities for domestic use of soybeans. Ever increasing attention is being given to soybean composition because foreign purchasers of U.S. soybeans - who purchase approximately 30% of the U.S. crop - have become more vocal in requesting soybeans with more protein and oil. Low oil and protein content is particularly a problem in Iowa, Minnesota, North Dakota, South Dakota and Nebraska. These states represent 35% of the total U.S. soybean production.

At the same time, soybean farmers across the South face different types of problems. Southern producers face a greater number of limiting factors and production hazards than in any other major soybean production area. As a result, the majority of southern soybean producers have lower yields per acre and lower economic returns from their soybean production. Research is essential to help farmers combat too much or too little water; diseases, insects and nematodes; weeds; and reduced yield from double-cropping soybeans.

Soybean farmers support continuation of the FY 1991 funding of $525,000 for research on soybean composition and southern production efficiency as proposed in the FY 1992 ARS budget.

Research in pest control - specifically the soybean cyst nematode - is also vital. Scientists estimate that more than 20 million acres of land in the U.S. are infested with the cyst nematode. Nationally, soybean cyst nematodes have been identified in 26 of the 30 soybean producing states. Soybean farmers support expanded funding for soybean cyst nematode research.

Research to develop soybean oil-based printing ink has been a phenomenal success. First introduced in 1985, soy ink is now being used by 1/3 of the nation's 9100 newspapers, including 1/2 of the 1700 daily newspapers. Use of soy ink is spreading rapidly into the commercial print market. Twenty-two companies have been issued licenses to sell and manufacture soy ink.

Soy ink has less ruboff than petroleum based inks, is environmentally safer, has outstanding color and is made from a renewable resource -- U.S. soybeans. In the last year, scientists have perfected a new formula for the ink that eliminates petroleum products and substitutes 100 percent soybean oil. Research must continue to develop and perfect formulas for use in various printing mediums.

For soybean oil-based ink research, soybean farmers support a funding level of $500,000 ($167,000 increase over current funding and Administration request).

Soybean farmers want sound environmental policy, based on scientific facts, which allows them to produce competitively and profitably while protecting the environment. One important program that will help in that aspect is the Integrated Crop Management (ICM) Research Program authorized in the 1990 Farm Bill. The President's FY 1992 budget does not provide funding for the program, but, instead, includes $4.5 million for research directed solely at low input sustainable agriculture.

Soybean farmers support redirecting funding for low-input sustainable agriculture research into the ICM Research Program and/or redefining sustainable agriculture to include the broader ICM Program.

Voluntary water quality programs - such as the Agricultural Water Quality Protection Program authorized in the 1990 Farm Bill - are necessary to encourage farmers to help protect their natural resources.

Soybean farmers support adequate funding for the new Agricultural Water Quality Protection Program.

Soybean farmers support the newly funded National Initiative for Research on Agriculture, Food and the Environment. The American Soybean Association has played an active role in the planning process for the Initiative through USDA's Advisory Workshops.

Soybean farmers continue to stress that production research must be a priority and, for the National Research Initiative, support increased funding for FY 1992.

Export Programs

Through a network of eleven overseas offices working in over 80 countries, American soybean farmers are annually involved in approximately 400 projects worldwide to create and expand markets for U.S. soybeans. Success has been achieved through the combination of farmer-invested promotion dollars overseas with Foreign Agricultural Service (FAS) funds to make foreign consumers more aware of soybean products. This combination is essential to increase U.S. soybean farmers' share of the growing world vegetable oil and protein markets.

Market development programs funded through the FAS are essential if the U.S. is to take advantage of the growing opportunities in the world market. Since its inception in 1954, long-term development activity has been the primary focus of FAS. Working with approximately 75 "cooperators", including the American Soybean Association, FAS in cost-share partnership with U.S. farmers has helped increase U.S. agricultural exports in recent years.

The success of FAS-farmer funded projects is evident around the world -- in Mexico, Germany, Colombia, Korea, Tunisia, Algeria, Greece, Turkey, China, Hungary, Japan and more. In Guatemala, for example, technical support from American soybean farmers and opportunities to observe modern swine production have had a great impact on the swine industry. Through the cooperator program, ASA has been able to educate Guatemalan swine producers about modern production practices and feeding technology. As a result, participating farmers have increased the use of soybean meal in their feed formulations and are being copied by other swine producers. ASA's promotional efforts have led to an 83 percent increase in Guatemalan soybean imports in 1991.

In Taiwan, a combination of technical assistance to oilseed refiners, feed millers and livestock producers and employing an education campaign involving nutritionists and dietitians, has contributed to maintaining an import market averaging 1.9 million metric tons of soybeans and a U.S. market share in excess of 95 percent over the past three years.

Cooperator funds were used for the first time in 1990 to promote the overseas use of soybean oil-based printing ink. Prior to the promotion, the use of soy ink was non-existent in Belgium. Following the promotion, several newspapers began using soy ink and an ink manufacturer began producing the ink for markets in Belgium and elsewhere in Western Europe, using more than 600 metric tonnes of soybean oil in the first year.

Between 1980 and 1988, FAS staff and budgets declined 7 percent while Congress enacted 12 new programs for FAS to administer. USDA has proposed $109 million for FAS funding for FY 1992, with increased funding directed toward purchase of computer equipment.

To support expanding marketing opportunities around the world, U.S. soybean farmers support a funding level of $115 million for FAS and recommend that the increase of $6 million be directed toward marketing activities around the world.

In 1985, the Targeted Export Assistance (TEA) program was mandated by Congress to assist commodities whose overseas sales suffered because of unfair foreign trade practices. Renamed the Marketing Promotion Program (MPP) in the 1990 Farm Bill, this vital program has enabled American soybean farmers to build consumer awareness and loyalty for soybeans in the European Community, where soybean exports have been damaged by GATT-illegal domestic oilseed production and processing subsidies. The successes for soybeans are many:

- o In Spain, an educational campaign targeted at Spanish margarine and shortening producers combined with a strategy to change government policy on pricing of domestically-produced soybean oil, resulted in a monthly soybean oil usage of 2,500 tonnes - up from 800 tonnes.
- o In Germany, soybean oil has regained the number one position in terms of consumption which had been lost to subsidized rapeseed oil. Twenty-five brands of identified soybean oil products have been introduced over the past four years. ASA

participated in twelve cooperative promotions in 1990 which generated industry support and contributions of $1.5 million.

- In Greece, twenty-six brands of identified soybean oil exist when none existed in 1986. The market share for soybean oil grew to eleven percent by the end of 1989 and is well on the way to the goal of 20 percent.
- In Portugal, quality improvements and promotion have created a better image for soybean oil. Soybean oil is now sold in the major hypermarkets, retail outlets that, prior to 1989, sold virtually no soybean oil.
- In the United Kingdom, four of the five major supermarket chains have introduced identified soybean oil margarine. Distribution is now nationwide. ASA supported the product launches with generic television and print advertising, coupled with in-store promotions and displays. Soybean oil margarine achieved a 3.4 percent share in a highly competitive and promoted market.

ASA strongly supports continuation of the MPP program with a funding level at the authorization level of $200 million annually.

The potential for future growth in soybean and soybean product exports is great in the developing nations in Eastern Europe, Asia, Africa and Latin America. Most of these nations want to import more U.S. soybeans, meal and oil. However, many lack the funds and infrastructure to utilize imported commodities. The export credit programs administered by FAS are essential to promote foreign consumption of U.S. products. USDA's GSM-102 and GSM-103 programs help stimulate U.S. exports by assuring the availability of bank financing to foreign purchasers.

ASA supports the President's recommended funding levels of $5 billion for GSM-102, $500 million for GSM-103, and $200 million for emerging democracies. ASA also supports USDA's proposed funding of $1.4 billion for the P.L. 480 Program.

The American Soybean Association appreciates the support and leadership of the Subcommittee and looks forward to a continued positive working relationship.

ASSOCIATION OF SYSTEMATICS COLLECTIONS

STATEMENT OF DR. ALLAN C. ASHWORTH

Summary

Recent financial help from Congress has stopped the erosion of the vital programs of the Systematic Entomology Laboratory (SEL). We are grateful for this assistance!

We urge this Committee to continue to provide incremental increases until SEL is able to solve problems involving agricultural pests such as leafhoppers, mites, leaf-rolling moths, and whiteflies. The lack of systematic expertise in these groups is a major gamble on the part of American agriculture.

SEL is essential to the detection, quarantine, and management of insect pests, and has major impact on programs in biological control and biodiversity. Each year the Laboratory identifies and provides pertinent information about more than 100,000 specimens of insects and mites to assist private industry, Federal and state agencies, universities, foreign organizations, and private citizens.

The total need in the Laboratory is for $1,400,000, but an increment of $1,000,000 would add scientific expertise in leafhoppers, provide more rapid identification services to agricultural constituents, and would enhance the availability of critical systematic information on insects and mites.

Testimony

My name is Allan Ashworth, Acting Dean of Mathematics and Sciences, North Dakota State University. I am testifying on behalf of the Systematic Entomology Laboratory (Agricultural Research Service) for the Association of Systematics Collections. We are very grateful for the financial assistance that you have provided over the past two years, which has relieved some of the serious financial constraints that surround the programs of this vital systematic organization. This help has allowed the Laboratory to add one critically needed scientist to study a group of moths including the European corn borer and sugar cane borer and has increased the level of technical support from one technician for each four research scientists to one for each two. Operating funds have been increased so that it is no longer necessary for scientists to use personal funds to conduct their research. A temporary position recently has been advertised to fill the serious need for research and identificaion services on leafhoppers. Thank you for your assistance!

Unfortunately, there remain serious funding problems. With the help from Congress over the past two years significant progress has been made, but there is still a need for $1,400,000 to bring the program to the level that is required by U.S. farmers and other American taxpayers. Financial figures of dollars per scientist are about half of the average amount in ARS and there are persistent major deficiencies in the agricultural pest groups and biological control agents that are covered by current Laboratory personnel. The continued lack of essential systematic expertise represents a major gamble on the part of the American people and American agriculture. To aid in the visualization of the urgency of this matter, I am providing desk clocks to indicate that every minute that passes without coverage of these groups is a minute of serious risk for U.S. agriculture.

The need is for permanent employees to provide identification services and critical research on leafhoppers, leaf-rolling moths, plant-feeding mites, whiteflies, wireworms, wood-boring beetles, spiders, and gall wasps. The inadvertent and undetected introduction of any of the pest groups could be devastating to the farmers in North Dakota and the rest of the U.S.

Biological control also is heavily dependent upon the research and services of the Systematic Entomology Laboratory. When implementing biological control strategies, it is critical that the taxonomy of the host species and potential biological control agents be well understood. Many biological control programs have failed because of poor systematic information. With increasing emphasis on biological control, it is doubly important that a strong Systematic Entomology Laboratory be available so that biological control programs are not jeapordized by inadequate systematic support.

The Systematic Entomology Laboratory and the Department of Entomology in the Smithsonian Institution also form the core of scientific expertise that will significantly add to our desperately needed knowledge of entomological biodiversity. An adequately funded Systematic Entomology Laboratory will assure that agricultural needs are significant components of biodiversity programs. For example, it is critical that biological control specialists have detailed knowledge of all natural enemies of the tobacco budworm and related moths. Until recent research by the Systematic Entomology Laboratory and the University of Maryland, it was believed that the tobacco budworm complex consisted of only 4 species. It is now known that there are 13 close relatives of this important agricultural pest and there are many more that are unknown to science. The natural enemies of the known and unknown species of these moths hold the solution to the tobacco budworm problems. Until biodiversity research allows a detailed inventory of this group of pests and it relatives, this solution will remain undiscovered. Without a biodiversity initiative, many biological control agents will be driven to extinction before they are discovered and used for the benefit of agriculture and man.

In years past we have requested funds for general support of the overall Systematic Entomology Laboratory program, including added technical support and operating funds. Although $1,400,000 would immediately bring the Laboratory to the level required to fulfill its critical agricultural mission, a smaller increment might be more realistic at this time. Therefore, I suggest infusion of $1,000,000 in FY 92 which would be used for the following programs.

1. Permanent Research Scientist to study Leafhoppers	$250,000
2. A Corps of Identifiers	$500,000
3. Staffing for Information Program	$250,000

I suspect that you are well aware of the need for a permanent leafhopper specialist. A number of constituents have written letters to Congressional representatives expressing their concern about the lack of a leafhopper specialist in the Systematic Entomology Laboratory. Leafhoppers are significant agricultural pests that feed on plant sap and are vectors of important plant diseases. The clock is ticking towards the time that there is an agricultural emergency involving a leafhopper problem; without a permanent SEL scientist, there will be no solution.

Secondly, we need to establish a corps of service scientists whose primary responsibility would be to provide identification services. Currently research scientists are responsible for identifications and research. Because research forms the foundation of the identification services and therefore is given a high priority, some users may experience delays in receiving answers to their needs. In emergency situations such as identification of insect contaminants on military equipment in the Persian Gulf, it is critical that answers to questions be as prompt as possible. Implementation of a corps of identification specialists will give users much more rapid answers to their questions and will allow research scientist to spend less time on services and more time on pressing agricultural research questions.

Thirdly, scientists within the Systematic Entomology Laboratory currently are developing information tools that will allow action agencies, extension personnel, and U.S. citizens to solve taxonomic problems directly. These tools will greatly enhance access to critical taxonomic information. The current problem in implementing this program is the lack of financial support. The need is for a team of specialists and support personnel that can devote full time to making this information available. This program will bring major benefits to the agricultural programs of North Dakota and other states in the U.S.

The Systematic Entomology Laboratory has "grass roots" impact in the Nation. Our efforts have been supported by individuals and organizations from more than 35 states and have included resolutions from such important agricultural groups as the National Plant Board, the Eastern Plant Board, the National Association of State Departments of Agriculture, and the Entomological Society of America. This Laboratory is critical to agriculture, biological control, biodiversity, and nearly every aspect of life sciences research. Therefore, I respectfully request that your important Committee continue to add funding to this essential agricultural resource so that it can function in a manner appropriate to the needs of our agricultural constituencies.

ASSOCIATION OF BIOTECHNOLOGY COMPANIES

STATEMENT OF PAMELA J. BRIDGEN, EXECUTIVE DIRECTOR

Thank you Mr. Chairman. My name is Pamela Bridgen and I am Executive Director of the Association of Biotechnology Companies (ABC). ABC is a not-for-profit trade association whose members consist of over 250 private biotechnology companies, State and academic biotechnology research centers, non-profit and government-affiliated entities, and other organizations interested in biotechnology. Many ABC members perform research and development in human therapeutics and diagnostics produced through biotechnology. In addition, some ABC members are exploring applications of biotechnology in other fields, including food and agriculture, veterinary drugs, and basic and applied biomedical research.

I thank the Chair and the Members of this Subcommittee for this opportunity to testify, as well as for your recent support of the Food and Drug Administration (FDA). ABC urges this Subcommittee to continue supporting the FDA in its mission of protecting the health and welfare of the American public in FY 92. In our view, increased Federal support for the FDA is one of the most worthwhile investments of Federal dollars that you could possibly make.

Background

Biotechnology represents one of the few bright areas in the troubled U.S. economy of the early 1990s -- both in terms of its benefits to the economy and its direct benefits for our citizens. In 1990, sales of biotechnology products were almost $2 billion for the first time and are projected to reach $4 billion by 1992. Some estimates from the Department of Commerce suggest that U.S. biotechnology sales will reach $40 billion by the year 2000. In fact, you may have noticed a recent flurry of stock market activity in biotechnology.

Furthermore, biotechnology products like recombinant human insulin, human growth hormone (HGH), erythropoietin (EPO), and interferon, along with diagnostic kits that safeguard the U.S. blood supply from HIV and hepatitis C, are making a major impact on human health care in our country and around the world. These landmark biotechnology products, and scores of their successors now in the product development pipeline, have largely been the result of American scientific ingenuity and American biotechnology innovation. In fact, over 1000 drugs and biologics for cancer, AIDS, and other conditions -- produced using the techniques of biotechnology -- are currently in clinical trials. Getting these drugs to the patients who need them in a timely fashion is where the resources of the Food and Drug Administration become critically important.

Before we address the resource needs of FDA, ABC would like to provide you with our expectations for the agency. We recognize that the agency is emerging from a difficult period and now has new leadership, and we are very optimistic about the future of the agency. Nevertheless, it would be unrealistic to believe that a large organization like FDA can make all necessary improvements and changes overnight. For these reasons, we have articulated both our short- and long-term expectations for FDA.

In the short-term, ABC expects FDA to perform at least three broad key functions:

- Reliable and expeditious new product review and evaluation via an understandable and scientifically-based review process.
- Systematic surveillance of approved products.
- Leadership in identifying and resolving product-related health care problems.

We also expect that FDA will make a proactive and high-priority effort in the area of biotechnology. This is critical for bringing the benefits of new biotechnology-derived products to the American public as rapidly as possible. At a minimum, FDA should provide timely guidance through Points to Consider to the industries that employ the technologies of biotechnology to ensure that companies in this industry understand how to direct their new products through the regulatory process in the most appropriate and efficient manner, since many have never done so before.

Over the long run, we believe that the Centers for Drugs and Biologics Evaluation and Review (CDER and CBER) should strive to:

- Administer the most efficient new product review and evaluation system in the world;
- Employ a staged new product approval process, wherein manufacturers can receive notification of approval of sections of applications, as they are made, in order to permit companies to proceed with business planning simultaneous with the completion of the review process.
- Adopt simplified and streamlined procedures for expedited issuance of guidelines and regulations;
- Take a proactive role in issuing **Points to Consider**; and,
- Promulgate amendments at regular intervals to the **Points to Consider** documents in rapidly emerging areas.

In addition, CBER is largely laboratory-based and a large proportion of its professional reviewers also conduct active research programs. The Center's research program is closely related to its regulatory functions and this constitutes CBER's greatest strength, as its in-house research program is ideally suited to investigating critical scientific issues that have an impact on regulatory policy. This capability is doubly important in rapidly evolving areas of science like biotechnology, where such research enables FDA scientists to stay current in applicable laboratory and clinical techniques.

And, in the biotechnology area, we believe that FDA should maintain a proactive approach to promoting the development and marketing of new biotechnology products, including active outreach and industry education efforts by FDA. We firmly believe that outreach by FDA can greatly contribute to the degree of success the U.S. will have in converting biotechnology research into valuable products for Americans. Equally, if not more, important is the positive effect that FDA can have in retaining U.S. biotechnological innovation in the United States, rather than having it move overseas.

Recommendations

FDA regulates about $650 billion worth of consumer products annually, but its own budget is a relatively small percentage of that amount. ABC believes that FDA needs additional resources to carry out its mandate. Specifically, we respectfully request that this Subcommittee provide funding of $855 million with no reduction for user fees. This level of funding is $85 million above the President's FY 92 Budget Request of $770 million. We believe that $75 million in additional funding is needed for FDA to properly implement new responsibilities authorized by Congress and $10 million is needed for planning and assessment of a consolidated FDA building. The President's budget assumes the collection of $197 million in user fees, which, as you know, the Congress has not authorized. ABC is strongly opposed to the collection of user fees. Our member companies believe that the FDA should be provided with adequate resources by the Government to do the work it is asked to do. Furthermore, our small companies, that are the source of a disproportionately large fraction of new innovations but are financially fragile, feel that they could be driven out of business or disproportionately impacted by the fees.

Rationale for Funding Recommendation

The recommended level of funding would allow FDA to begin to address the following critical needs. First, CDER, CBER, and the Office of Biotechnology need staff increases commensurate both with new legislative mandates and accelerated regulatory demands in active new product development areas, such as biotechnology. Currently, the future development of biotechnology products, and the American biotechnology industry itself, is facing a considerable barrier at the FDA. That barrier is the progressively lengthening time interval required for regulatory review and approval. In the past four years, the mean time for approval of biotechnology products evaluated within CBER has increased substantially over the past few years. No wonder many biotechnology companies now commonly plan to first introduce their products in Europe or in Asia.

The great preponderance of biotechnology-related products evaluated by CBER fall into two general categories: those termed cytokines and growth factors, and those derived from monoclonal antibodies. Over the past five years, the number of active INDs involving cytokines and growth factors under review by CBER has increased by over 275%. During the same five-year time frame, the number of active INDs for monoclonal antibody-related products has increased by over 400%.

Moreover, excluding some modest resource increases which have been specifically earmarked to support the Federal campaign against AIDS, there has been no net increase in CBER's scientific staff in the past 16 years. During the same time period, the total number of non-AIDS-related INDs has increased over four fold. Most of this increase is attributable to biotechnology. In 1980, there were five biotechnology-related INDs submitted to CBER. In 1990, we estimate that CBER will receive over 200 new biotechnology IND submissions. Whereas biotechnology-related products represented only a tiny fraction of all CBER-related INDs in 1980, today they represent the lion's share of CBER's regulatory responsibilities. And, these workload increases have occurred without any meaningful increase in scientific review staff.

FDA needs to recruit and hire scientists expert in the biotechnological techniques necessary for the products currently under review, as well as those techniques that will yield the next generation of products. In particular, CDER and CBER need to seek a significant increase in the proportion of reviewers who have current, state-of-the-art laboratory skills. Finally, and no less significant, FDA needs to implement staff training and development programs.

Finally, in 1990, FDA wisely created an Office of Biotechnology (OB) to coordinate the agency's activities and policies with regard to this technology. OB has served to increase the efficiency of the Agency's biotechnology activities generally, and is off to an excellent start, but the Office is woefully understaffed, consisting of only 3 professional staff. We believe that the Office should take a more active role in the daily activities of the Agency, but it needs additional staff to do so.

FDA's Lack of Resources Affect the Public

Under new requirements of the European Economic Communities (EEC), the EEC's Committee for Proprietary Medicinal Products (CPMP) is required to accomplish its initial review of product license applications within six months and then to accomplish its second, and commonly final, review within six months of the subsequent response from the application's sponsor. Thus, the entire European review process can commonly be accomplished in a little over one year.

In the U.S., the product license review process is completely open-ended, and as previously mentioned, the current expected time frame for approval of most biotechnology-related products is of the order of 2 or 3 years. Is the United States destined to perennially die on third base? Last year, the U.S. Government spent $8.3 billion on the National Institutes of Health budget --resources which are used to support basic and applied research in this country. These funds support the most impressive and productive biomedical research establishment in the world. However, last year, there was no funding increase whatsoever for review of new biotechnology products by the CBER. How can we be so generous in supporting biomedical research and so lax in bringing its exceptional benefits to our citizenry?

It is ABC's position that this gigantic discrepancy in Federal funding emphasis is gravely in need of correction. Lacking the necessary human resources required for efficient review by FDA of new biotechnology products, the biotechnology industry within the United States will most certainly languish. Even now, critical biotechnology product development -- and the corresponding applications for marketing approval -- are being driven offshore where product approvals occur in a timely fashion. If this pattern continues, our economy will suffer from weakness is several sectors in which new biotechnology can play a pivotal role. Most importantly, the remarkably innovative and invaluable health benefits offered by biotechnology related products will first be enjoyed by Europeans and Asians, and not by the citizens of the United States -- ironically, the one nation which both spawned and generously nurtured the biotechnology revolution.

Finally, in anticipation of new products, we believe that there is a need for FDA to promulgate a clear, comprehensive, and unequivocal statement of its policies for regulating foods and food ingredients manufactured with new biotechnology. We anticipate that such a policy will define an additional workload for the Agency which will require incremental resources.

Conclusion

In conclusion, ABC would like to reiterate our thanks for this Subcommittee's recent support of FDA. We urge you to recognize the tremendous needs of the agency due to the scientific explosion that has created unprecedented demand on the agency. And, as you know, the difficulties affecting FDA affect everyone, from the consumer waiting for a new drug to be approved, to the manufacturer forced to spend extra time and money on a protracted approval process. Such costs to industry are particularly problematic for small biotechnology companies, some of which are already struggling to survive. Furthermore, the lack of adequate resources for FDA is already threatening the international competitiveness of American companies.

We urge you to continue to make your voices heard on the critical needs of the FDA. While the Agency has provided many services to the American public, and continues to benefit from the talents of many dedicated employees, FDA has not been rewarded with resources in proportion to its growing responsibilities or commensurate with the astronomical volume of products it regulates. ABC believes that FDA should be provided adequate resources to do its job of protecting the health and safety of the American public.

Thank you for your time. I would be pleased to answer any questions that you may have.

STATEMENT OF THE BIOPURE CORP.

Mr. Chairman and distinguished Members, I would like to thank you for giving me the opportunity to submit testimony. Biopure Corporation is a Boston-based company that is developing technologies to identify, isolate and produce large amounts of highly purified biological materials for use in the pharmaceutical and health care industries. Biopure began its work on a red blood cell substitute in 1984 for both human and veterinary uses in response to a growing concern on the safety and availability of the blood supply.

Biopure currently has successful on-going human and veterinary research and development activities at the following institutions: Massachusetts General Hospital, Boston; Tufts New England Medical Center, Boston; Johns Hopkins, Baltimore, Md; Columbia Presbyterian Hospital, New York; Bellvue Hospital, New York; Dana Farber Cancer Institute, Boston,; Rush Presbyterian St. Luke's Medical Center, Chicago; University of Wisconsin, Madison; Tufts University School of Veterinary Medicine, Boston; University of Pennsylvania School of Veterinary Medicine, Philadelphia; and the New York Animal Medical Center, New York.

Concern about the blood supply is the United States is grave. Both the huge blood supply requirements and concern over safety of the supply have emphasized the need for safe oxygen-carrying blood substitutes. In a recent article in U.S. Medicine, the huge supply of blood needed to support Operation Desert Storm has rekindled and accentuated the need for oxygen carrying blood substitutes. In fact, the military surgeon generals recently met with scientists from Biopure for an update on the company's progress in our blood substitute research.

The United States is facing a serious problem in the blood collection system. For the human population, AIDS is only one part of the problem. Blood borne viruses are alarmingly common. Means to detect the AIDS virus were not developed until 1985. An AIDS related leukemia virus may well be present in up to 4% of blood in some regions. Hepatitis, however, is the most far-reaching of all the blood borne diseases; as many as 200,000 Americans can trace serious illness or death to transfusion caused hepatitis -- one in twenty blood recipients of multiple units of blood contracts the disease.

Today in this testimony I want to inform you about a product which is in animal testing for a veterinary product and has begun human clinical testing which could have a dramatic benefit to United States and worldwide health care, both veterinary and human. It is a scientific breakthrough in oxygen transport therapy. What I will share with you is the development of a temporary blood replacement which will fill the need which cannot be met today.

The product is a temporary red blood substitute. It is a material that can take the immediate function of blood, we believe, for all mammalian species: humans, primates, cats, dogs, horses, and the like. The product is derived from the red blood cell of a cow. It is a specialized protein of unique properties called Hemoglobin. It is the materials that gives blood its red appearance in animals as well as human beings. This material transports oxygen through the circulatory systems, veins, and arteries, and supplies the necessary oxygen to sustain the biochemical activity of life.

The raw material can be obtained either as a byproduct from packing houses or from an alternative and parallel use of farm animals, for example, a donor herd that could give a certain amount on a regular basis as well as be available for other uses such as milk and milk products.

Biopure Corporation has announced several findings over the last year which have indicated promising results to the start of successful product commercialization on the veterinary side as well as preliminary human clinical testing which indicate further development is warranted. In 1990 the FDA held a hearing and released a comprehensive list of requirements that will have to be met before it grants requests for any kind of clinical testing. This extensive list in this important area of oxygen transport requires extreme technical and scientific development from many different aspects in the physical and pharmacokinetics utilization of a hemoglobin-based product.

To date we have shown that the cattle blood can be made to yield practically pure hemoglobin, and protein that carries oxygen to our organs and muscles. Although hemoglobin's precise composition varies form species to species, in all vertebrates it does the same job. Thus, with chemical modifications, the bovine hemoglobin will work in humans and animals of all species, freeing them from problems inherent in receiving donated blood either from a human blood bank or from captive animals that are donor specific. Researchers have been trying for decades to find an alternative to blood transfusions. The problem is that blood is not easy to manage. Hemoglobin is carried only within the red blood cells and living cells impose many limitations. they have to be separated from other blood constituents such as white cells and they require cold storage. Even when refrigerated, red cells only keep for up to 42 days in the refrigerator. Less they be attacked by the recipients immune systems, they have to matched to his blood type in any exchange of cells between people there was always some risk of transmitting diseases. Certainly no single substance will ever replace blood, a complex formulation of materials that performs the regulating of various functions within the body. But, a substance that does the work, just of hemoglobin, would be enough for many trauma victims and wounded soldiers, accident victims and surgical patients who get transfusions in a short time frame, primarily to keep the flow of fluid and oxygen delivery to their systems. It has been reported, for example, that as many as 15,000 fewer U.S. soldiers might have died in Viet Nam if an easily handled blood substitute had been available in the field.

Development of blood substitutes has proved to be complex. Progress may have been slowed in many cases by lack of funding for researchers. To enlist the support of the academic community, a mechanism for federal funding must be put into place. Many scientists think blood substitutes may finally be getting close to market. Federal funding is now necessary in order to assure that the development and testing can be accomplished in order to bring this critical product to market.

To assure the success of blood substitute material for veterinary and human markets, Biopure has invested significant sums. What we need more than ever is the funding for grants to research institutions to bring this product from development to market so it can be utilized in our medical system. It is critical that Biopure's leading edge biological separation technology, which is keyed to the artificial blood, be saved from control or being exported by European pharmaceutical companies which are clamoring for technology involved in this critical development.

In the last few years, due to the shortage of funding we are being forced, like so many small U.S. companies to consider expanding efforts outside the United States. This fact could ultimately cause the technology to be lost to the Europeans and the Japanese. Today, for example, we are being aggressively pursued. The United States should ensure that critical technology not be lost. As I stated earlier, we are already enjoying preliminary clinical results and have clinical findings which lead us to be more convinced of the need to move forward. We now need the help of institutions of stature in the medical and veterinary world to support a broader, more expansive range of testing and evaluation in order to bring the product to market. Further development and testing and ultimate full scale production of the many blood substitutes and very specifically our artificial blood substitute would answer a need of crisis proportions in the human and veterinary community and could lead to a tremendous benefit to mankind in the world. The obvious potential benefits are beyond comprehension in the world with the expanding concern over tainted blood.

I would encourage you and the subcommittee to provide funding for the development and testing of this artificial blood product to an institution of high caliber and experience in this field. To this end Mr. Chairman, I respectfully request that $300,000 be made available to Massachusetts General Hospital Cardiac Surgery Research Laboratory. Biopure has worked extremely closely with Massachusetts General and this funding would help in further research and testing.

CALIFORNIA FRUIT, VEGETABLE, NUT AND SPECIALTY CROP INDUSTRIES

STATEMENT OF GARY OBENAUF, DIRECTOR OF RESEARCH, CALIFORNIA PRUNE, RAISIN, AND WALNUT MARKETING BOARDS

SUMMARY OF REQUEST

California Agriculture and related industries (listed in attachment) request that the Committee include in its fiscal year 1992 appropriations, $3 million for planning and design funds for the Agricultural Research Service (ARS) for the construction of a new facility to replace the existing facility in Fresno, California.

It is also requested that the Committee include language authorizing the purchase of land necessary to relocate the ARS facility and language authorizing the sale of existing land with the proceeds to be used for the development of the replacement facility.

We request that the FY 1992 appropriations include funds for the Agricultural Research Service (ARS) for final planning and design for the construction of a new facility to replace the existing facility in Fresno, California. We do so in behalf of 37 fresh fruit, vegetable, dried fruit and nuts and specialty crop industries from the State of California. (Attachment I) In addition, we believe that the Fresno facility provides valuable research that benefits the nation's agriculture as a whole.

The work of the Fresno facility is recognized nationally and internationally for its valuable research. New facilities are vitally needed. The original buildings were constructed in the 1920's and are not adequate for state-of-the-art research. Residential and commercial encroachment is also a potential problem. The cost of construction of those facilities and specialized equipment is estimated to be approximately $34 million based on a 1996 final construction date. The construction of this facility will allow for the continuation of existing research and significantly improve the capabilities of the ARS to provide even greater benefits to agriculture, not only in the western United States, but nationally. A total of $3 million in planning/design funds are needed in FY 1992. These funds are necessary to complete the final planning so that preparations can be made for construction shortly thereafter. It is important that research keep up with the critical issues facing agriculture, such as production and marketing of commodities; preserving air, water, soil quality; research of post-harvest quality of crops; and the removal of quarantine barriers. Resolution of these problems is essential if we are to sustain and potentially increase both our domestic and export markets.

We also request that the Committee include language providing the Department with the authority to purchase land to accommodate the new facility. The existing land is in the midst of an encroaching urban environment which is expected to severely limit research which has to be conducted in field plots. A more appropriate site currently exists in Parlier, California. The Parlier land is adjacent to the University of California which would also enhance cooperative research work.

It is also requested that language be included in the fiscal year 1992 bill which provides authority to sell existing land and use the proceeds for the purchase of new land, specialized equipment, and development of a replacement facility.

The scientific staff of the ARS Fresno facility is uniquely qualified to continue and expand research in numerous critical areas. However, in order to do so effectively, there is a need to replace the facilities. Replacement is long overdue and we wish to communicate the critical importance of this need to the future of agriculture.

Attached also is a detailed statement (Attachment II) supporting the need for the new facility and the areas of research.

ATTACHMENT I

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ATTACHMENT II

EXECUTIVE SUMMARY

The fresh fruit/vegetable and dried fruit/nut industries and key agencies in water management support new facilities for the ARS Fresno Location.

New research facilities and equipment are needed to replace old and temporary facilities. The cost of contruction of those facilities and state of the art equipment is estimated to be about $34,000,000 based on an early FY 1996 construction completion date. This will provide ARS with the capabilities to have an even greater impact on agriculture in the western United States and the nation.

Major new growth is occurring in the Fresno area. Private residences now surround three sides of the Location property and a new school is planned less than one-quarter mile from the south border. Therefore ARS is searching for an alternative site(s) in the Fresno area which is more suitable for the laboratory and field research of the Location.

The Fresno Location of the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA) is uniquely situated in the San Joaquin Valley of California. Research conducted at the Location is significant, not only to the USDA-ARS, but to the nation. Both the laboratories at the Location, the Horticultural Crops Research Laboratory and the Water Management Research Laboratory, are recognized nationally and internationally for their research activities.

The San Joaquin Valley is the most intensive and extensive agricultural production area in the world and Fresno County, the most productive county in the USA, is considered by many to be the horticultural center of the world. Agriculture production of this Valley is the major source (over 53%) of the U.S. production of many fresh fruits and vegetables and dried fruit and nut crops. The 1984 farm value of these commodities was approximately $16 billion. Export of some of these commodities exceeds 60% of the U.S. production and these commodities, therefore, are significant not only to California but to the nation.

Key issues facing the production and marketing of these commodities include contamination of the air, water, soil, and food produced on these lands. Contamination may be due to pesticides, used either for the production or postharvest processing of these commodities, or to the transformation and/or transport of naturally occurring minerals in the soil. Some hazardous chemicals (i.e., selenium) occur naturally. Pressure to reduce or eliminate these problems will continue from federal and state action agencies, consumers, and environmental groups. The demand for higher water quality by these same groups, and increasing urban, industrial, and recreational uses are placing a premium on water for western agriculture. Recent drought conditions have also intensified these problems. Research conducted at the Location on these problems has and will have national and international significance.

Many of the stone fruit and table grape cultivars now used throughout the world were developed at the Location. The research on postharvest quality and preservation has made new domestic and export markets accessable to a wide variety of horticultural and vegetable crops.

The Fresno Location has contributed a great deal towards providing the national and international consumer with quality agricultural products. Significant advances have also been made in water management, utilization, and reduction of natural or applied groundwater contaminants.

The current facilities have numerous deficiencies that limit the ability of staff to accomplish todays and tomorrows research needs including:

* Current facilities are old (many built in 1930s) and are used (as research facilities) for purposes other than originally intended.

* Major new growth is surrounding the Fresno Location which influences present and future laboratory and field research programs.

* Building configurations are inefficient. Building systems are inadequate and deteriorating due to aging and heavy usage.

* Buildings do not meet current California Title 24 Seismic requirements. Major seismic reinforcement is required. This is particularly true for the permanent buildings.

* Not all facilities meet the Architectural Barriers Act of 1968, as amended, Pub. L. No. 90-480, 42 U.S.C. 4151-4157.

* Energy Inefficient: This is particularly true in the case of the "temporary" structures (converted trailer-complexes housing research laboratories).

* Inadequate space resulting in no separation of noncompatible research areas (e.g., insect pathogens vs. insect rearing) and overcrowding situation for researchers and support staff. Lack of space restricts future growth and response to future research needs.

- Site electrical systems are antiquated and inadequate to support major new loads. In some buildings, the inadequate electrical systems hamper the operation of equipment and research activities. Major upgrade is required.
- Most of the research laboratories do not have the required air flow to meet the ARS (and NFPA) Safety Code requirements.
- Short life expectancy of ("temporary") trailer-converted laboratory complexes: These have 10-14 years life expectancy at the end of which will need permanent replacement. Their life expectancy is also being exacerbated by fume hood exhaust. Maintenance and operation costs are exorbitant.
- Floor loads in trailer-converted research complexes are not adequate to support heavy laboratory equipment – resulting in constant floor system failure.
- Machine shop, located off site at the leased space at Fresno airport, was closed in FY 1990 due to safety and security reasons. The lease with the City of Fresno is tenuous. A replacement machine shop is desperately needed – to be located on site at the South Peach location.
- Site drainage: Poor drainage causes constant pavement system failure. Major improvement and pavement replacement are required.

USDA-ARS FRESNO LOCATION BACKGROUND INFORMATION

California is the largest producer of fresh fruits and vegetables and dried fruits and nuts in the United States. Many of the commodities could be considered unique to California (i.e., stone fruits, table grapes, raisins, walnuts, lettuce) in regards to U.S. production. There is a continuing and documented need to maintain or increase the quality of western grown produce after harvest and through the marketing channels while at the same time reducing chemical usage (i.e. insecticides, fungicides, postharvest waxes), and residues often associated with them. Postharvest chemicals are routinely used to disinfest or protect commodities, reduce decay, extend shelf life and their marketability and to enhance the visual and sensory appeals in the market place. Increasing regulatory agency and consumer pressure has profoundly affected both the production and postharvest sectors of agriculture. This pressure has also influenced the developers of agricultural chemicals. Unacceptable risks and developmental costs have almost eliminated development of new fungicides and pesticides for postharvest use. All of these factors necessitate the development of nonchemical alternatives to protect horticultural commodities and to provide high quality products without undesirable chemical residues. This pressure is not unique to the U.S. but is found also in most other countries of the western hemisphere. Foreign markets contribute substantially to the economic well being of the western states and U.S. agriculture. In order to increase our domestic and foreign markets, the U.S. needs to increase the quality and/or quantity of western agriculture products reaching the market place. New export markets need to be developed in all the Pacific Rim Countries such as Japan, the Far East, New Zealand, Australia, and South America. New markets also need to be developed for agricultural products in other parts of the globe. Often these markets are difficult to open because of chemical residue tolerances that are difficult for U.S. exports to meet. In addition, quality deterioration may occur because of long transit times required to reach these markets. We must therefore, through research, increase our competitive edge by increasing product quality, reducing or eliminating residues, increasing market life, and decreasing production and postharvest costs. New and innovative methods will be required to meet these challenges.

The farm value of all California agricultural products in 1984 was almost $16 billion at the farm gate, or about 11% of the total U.S. production. The total value of California agriculture, including postharvest handling, processing, transportation, or treatments for pest control approaches $53 billion annually. Agriculture is the largest employer in California.

California produces about 53% of the nation's fresh fruits and vegetables and dried fruits and nuts. For many commodities, over 20% of the production is exported; some can reach 60%. This provides a significant contribution to the economy of California and the nation's balance of payments.

One of the key issues facing agriculture in general is the real or perceived impact of pesticides on the consumer and the environment, whether they be used in production agriculture or after the commodities have been harvested. Chemical preservatives (i.e., fungicides, fumigants) are routinely used to preserve the quality or extend the market life of the high quality products derived from western agriculture for sale domestically or in export markets. The objectives of postharvest research in ARS are to increase product quality, open more domestic and export markets, extend market windows, and reduce the amount of chemicals used in order to protect the consumer. Many areas of research to meet these objectives can be envisioned such as alternative methods for controlling spoilage organisms, (i.e., biological control, physical treatments) new and innovative methods to extend market life, development of alternative strategies to fumigants for breaking down quarantine barriers, the breeding of pest- or stress-resistant varieties and new varieties opening up larger domestic and foreign markets by extension of harvest seasons or increased quality.

Of major concern to both the public and regulatory agencies is water quality. Pollution of the water systems is a major national problem, and even more amplified in the western United States because of the diverse and extensive agricultural production sector, the intensity of pesticide use because of acute pest problems (i.e., insects, plant pathogens), and the lack of adequate rainfall to help "clean up" the system and adequately recharge the groundwater supply. Pesticide residues may also be carried over into the marketing channels. Water quality in the West can also be affected by natural components (i.e., salt accumulation and toxic elements such as selenium) which become aggravated by poor water management practices. Because of the continuing and increasing demands (population growth) for water for other than agricultural uses, more efficient schemes of agricultural water management must be devised as well as methods to maintain or increase water quality. Recent droughts have also placed an increasing premium on agricultural water.

As the western U.S. population continues to grow (i.e., approximately 700,000 in California in 1989), the demand for urban water supplies, recreation, and manufacturing increases proportionately. Since most of the inexpensive development of water supplies has already taken place, the potential for acquiring additional water is remote. For example, no new water developments are planned by the State of California in the near future. Agriculture currently uses 82% (27 MAF)[1] of all the water diverted in California. As a result, there is growing pressure by urban and recreational interests groups for agriculture to give up or sell part of its water supply. Research needs to be directed towards maintaining or improving water quality (salt accumulation, selenium, etc.), irrigation efficiency, and reasonable water use with the goals of maintaining productivity and possibly freeing some agricultural water for other water uses.

In arid and semi-arid regions, irrigation causes salts to accumulate in soil. Salts need to be leached out by draining methods and the drainage outflow requires disposal. Since disposal of saline drainage water continues to plague the San Joaquin Valley, research needs to emphasize a solution to this problem. Solving irrigation and drainage problems is vital for the long term survival of irrigated agriculture in California and many parts of the U.S. and for maintaining the stability of many food and fiber crops now being grown predominently in California.

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[1] 1 MAF = 1 million acre feet of water; 1 AC = 326,000 gallons of water.

Studies investigating the use of accumulator plants to remove toxic elements from soil and waters have implications for human and animal health which extend throughout the United States (i.e., selenium). If accumulator plant species are identified and water and cultural management methods can be developed to use these species to extract toxic elements from the soil and water, then levels of toxic elements can be lowered in soil and the area can then be safely used for agriculture and other purposes.

In an era when water resource management is vital for economic survival of western agriculture, research needs to optimize plant nutrients/water interaction to ensure the productivity, sustainability, and profitability of agriculture. As our best land resources are quickly being used by new urban, industrial, and recreational developments, the ability to maintain productivity and sustainability on marginal lands in a minimally toxic or nontoxic manner will be vital.

USDA-ARS RESEARCH AT THE FRESNO, CALIFORNIA LOCATION

The USDA-ARS research facility at Fresno is located in the center of the most unique, intensive, and diverse agricultural growing area of California and the United States. Thus, it is in an ideal situation to broach many of the problems associated with western agriculture. The two Laboratories at the Location, Horticultural Crops Research Laboratory (HCRL) and Water Management Research Laboratory (WMRL), have conducted research for years on the key issues facing production and postharvest agriculture in the west. These laboratories are so situated that they can respond quickly to both short and long term problems through their research efforts. One significant example was the development of commodity treatments for disinfestation of Mediterranean fruit flies during the California Medfly crisis in the early 1980s. If tropical fruit flies become established in California and other areas of the West, the Fresno research facilities would be a logical location for research on these destructive pests that have national and international quarantine implications. Many of the advances to increase water use efficiency and quality and increasing the quality of California commodities for domestic and export markets have been contributed by scientists at the ARS facility. The facility is composed of 26 scientists and 55 support personnel, not including visiting scientists, post-docs, graduate and undergraduate students and cooperative agreement employees.

HORTICULTURAL CROPS RESEARCH LABORATORY

The laboratory is organized into two research units, each having multidisciplinary interests: Commodity Protection and Quarantine Insect Research and Postharvest Quality and Genetics Research. There are six research entomologists and nine plant scientists in the units, respectively. Fields of study include plant physiology, horticulture, plant pathology, packaging and transportation, plant breeding and genetics, insect biology, ecology, and pathology and control of insects by microbes. In pursuit of their research goals, staff members cooperate with other Federal and State agencies, universities and numerous commodity organizations. The research encompasses work on western grown fresh fruits and vegetables, dried fruits and nuts, and insects and disease organisms that attack them. The results of the basic and applied research benefit agriculture and consumers throughout the U.S., because California produce is shipped to every part of the country. Much of the research also benefits other areas of the U.S. having similar crops. Additionally, the research results facilitate expansion of foreign markets because information and techniques that are developed at the Laboratory help maintain quality during the long transit periods overseas and meet quarantine requirements to increase export markets.

WATER MANAGEMENT RESEARCH LABORATORY

The mission of the Water Management Research Laboratory is to: (1) develop advanced water management practices, methods, equipment, and systems to utilize soil, water, and energy resources efficiently and to increase sustainability and crop productivity in irrigated agriculture; (2) evaluate and predict consequences of water management practices on the quality of surface and groundwater; (3) reduce pollution of soil and water by naturally occurring and agricultural chemicals through improved water management; and (4) develop irrigation management procedures for improving agricultural sustainability and environmental health, and conserving irrigation water supplies. The staff consists of six research scientists and their support staff. These goals are met by in-house as well as cooperative research with other private, state and federal institutions having a vested interest in water quality and management. The results of the basic and applied research benefit agriculture and the general public because they improve the efficiency of water use and the quality of the environment under irrigated conditions. Additionally, many of the results obtained can be transferred to other areas of the U.S. and the world where irrigated agriculture is practiced.

The research results from the Location are presented at international, national, and regional meetings and published in scientific and technical journals, USDA publications, and in farm and environmental magazines. Substantial technology transfer projects are conducted to ensure that research results are used properly.

RECENT FRESNO RESEARCH ACCOMPLISHMENTS

Horticultural Crops Research Laboratory

- Developed quarantine treatments and all ancillary data lifting the bans on export of walnuts and nectarines to Japan. Opened a market of $10 million per year for walnuts and a projected market of $10-50 million for nectarines.
- In cooperation with the USDA-ARS Hawaii Laboratory, developed fumigation schedules for fruit flies infesting numerous California commodities, thus allowing interstate and export markets to continue if the insects are introduced to the mainland.
- Through innovative and more rapid breeding techniques, introduced new and novel table grape and stone fruit cultivars providing increased domestic and foreign markets. The value of new cultivars resulting from this research is worth over $400 million annually.
- Developed and patented a formulation of an insect virus as a protectant for dried fruits and nuts against Indianmeal moth (a world-wide pest) in marketing channels.
- Developed much of the data used by industry for the optimum storage and transportation of fresh fruits and vegetables saving innumerable losses to the industry.
- Developed an insect pathogenic nematode for control of Hawaiian fruit flies that provides another alternative for control of the species.
- Contributed significantly to the efficient and reduced use of sulfur dioxide for decay control in table grapes; an industry valued at over $500 million annually.
- Defined the uses of plastic films for maintaining the quality, and extending shelf-life and availability of fresh vegetables and fruits.
- Developed alternative technologies for controlling brown rot of peaches.

- * Determined the phytotoxic limits of various quarantine fumigation treatments on citrus shipped to domestic and export markets.

Water Management Research Laboratory

- * Developed innovative groundwater recharge methodologies for protecting and conserving the quality and quantity of ground water supplies of the San Joaquin Valley.
- * Developed management strategies for irrigation and drainage water in central California containing toxic levels of elements (selenium) in the soil and drainage waters. For example, recycling of saline drainage water and use of plants efficient in taking up selenium.
- * Identified mustard plants as very efficient in lowering selenium concentrations in soil through plant uptake.
- * Developed design and management criteria for highly water-efficient surface and subsurface drip irrigation/fertilization of row and tree crops.
- * Developed optimum water requirements for the following major crops grown in the San Joaquin Valley: cotton, tomato, cantaloupe, broccoli, sweet corn, and sugar beets.
- * Developed computerized management techniques for real time control of irrigation systems.
- * Developed instrumentation for electronic measurement of soil water and evaporation.
- * Developed design criteria for low pressure lateral move precision irrigation systems.

COOPERATIVE RESEARCH

Scientists at the Location have cooperated with numerous other ARS, SCS, and APHIS laboratories throughout the United States and Europe. Current or past research also includes cooperation with the University of California Extension Service and scientists at U.C. Davis, Berkeley, and Riverside. Specific Cooperative Agreements have also been funded with the Riverside, Berkeley and Davis campuses. Cooperative projects have or are being conducted also with the California State University, Fresno. The base for this cooperation is very broad covering most disciplines represented at the two Laboratories. Cooperative agreements with other Land Grant Universities such as Texas A&M have also been implemented.

Scientists at the Location have had numerous cooperative agreements with other U.S. agencies such as the Department of Energy, USDA's Soil Conservation Service and the U.S. Geological Survey. Both Laboratories have conducted research with various private organizations such as water districts and commodity groups. This cooperation, through Trust and Reimbursable Agreements has helped solve specific program needs of the Location on a timely basis. It has also provided windfalls for the Location's increasingly tight budget. Cooperative research has also been conducted with various state of California agencies such as the Water Resources Board and the California Department of Food and Agriculture.

Both Laboratories are recognized internationally for their research activities as indicated by a number of Tri-National and PL-480 Projects and BARD grants with Israel. Scientists at the Location have been asked to collaborate on program reviews of institutions throughout the world. A number of scientists have spent sabbatical leaves at the Location and other foreign and domestic scientists/policy makers frequently visit the Location.

Many of our scientists have attended international meetings and have been involved as consultants with international programs for many agencies. The location is frequently visited by scientists from all over the world interested in water management, postharvest and breeding program.

FACILITIES

In 1985, the USDA-ARS conducted a Real Property Utilization Survey of the Fresno Location. Much of their findings are enumerated below. All available land and facilities at the Fresno research complex are being used to the maximum (General Services Administration control number for this site is 1205-07276). This is evidenced by the need to lease additional building space and the requirement for additional off-station field plots. Many buildings are overcrowded. In all cases, the permanent buildings constructed in the 1930s are below optimum in regard to floor space available for research as well as the "mix" of projects being conducted at any given time. None meet California seismic building codes. All permanent space was at one time modified to meet laboratory or office requirements. About 30% of the Location staff are housed in these permanent facilities while the rest of the staff is housed in temporary laboratory space composed of converted mobile trailer-office space units. These factors contributed towards development of design criteria for a new office/laboratory facility.

When the Agency was forced to vacate 10,000 square feet of laboratory space at the Fresno airport, dislocated personnel were placed in trailers at Peach Avenue, remodeled for office/laboratory space. As of 1988, all laboratories and staff in Fresno were consolidated at the ARS Peach Avenue location. The addition of these trailers beginning in 1984 exacerbated an already existing overcrowded situation, both for laboratory space and experimental field plots. Based on an estimated 10 year expected life, many of these facilities will be unusable by 1994. Annual utility costs for the location are approximately $153,000/year or $7,000 per research scientist. These costs point to the energy inefficiency of the present facilities. Shop and storage facilities are still in leased facilities off the Location and present continuous security problems.

The Fresno research facility is strategically located close to major crop production areas and in the center of the State with the most extensive irrigated agricultural system in the world (10,000,000 acres). It is in close proximity to horticultural supplies via packinghouses/agricultural industries – a critical factor since perishable commodities require a very short transit time between harvest and set-up of experiments. Production and processing areas are also nearby. Proximity to the California State University, Fresno and University of California agricultural research centers at Kearney and Five Points is highly desirable due to available professional and student assistance and the need for professional cooperation. Proximity to urban areas and airports are also highly desirable because of the large number of local purchases made and numerous air shipments of commodities made annually.

In conclusion, the Horticultural Crops Research Laboratory and Water Management Research Laboratory in the Fresno, California area are performing a vital research function for the Agency and the nation. Its present location is strategic to the accomplishment of the ARS research mission.

NEEDS FOR THE FUTURE

RESEARCH PROGRAMS

The previous discussions have indicated the importance of the ARS-Fresno Location to western agriculture. These USDA-ARS Laboratories are in an ideal situation to provide a research base for the modernization and sustainability of agriculture for many decades. The San Joaquin Valley has a unique climate, a diversity of high value crops and differing soil and water types to provide a broad base for research from production through harvest and to the eventual consumer. With the increasing needs for improved environmental quality and human health, both the production and postharvest sectors of agriculture will be required to reduce environmental pollution and undesirable residues in soil, water, air and food. The Fresno Location will make significant contributions to alleviating these pressures. Much of the research conducted at the Location is already geared towards reducing undesirable residues and discovering new and innovative methods to reduce or eliminate the dependence on agricultural chemicals and increasing water and soil quality and efficiency. The lack of many incentives, and the abundance of disincentives to develop new agricultural chemicals for the postharvest arena, justify the need for new and innovative research. The leading forces to bring changes will be the regulatory agencies, the need for consumer and environmental protection, and the need to develop land and water resources.

Horticultural Crops Research Laboratory

In the future, the Fresno Location must be able to identify and research areas of concern to agriculture. The infrastructure now exists, but facilities and equipment are old and not adequate for meeting the challenge ahead. A significant portion of the research at the Horticultural Crops Research Laboratory is directed toward finding alternatives to the presently used postharvest chemicals, for decay and insect control. Much more research is needed on the use of modified atmospheres and unique innovations in storage technology to preserve and extend quality of fresh and processed horticultural crops, reduce losses, and at the same time provide consumer safety. More emphasis needs to be placed on finding alternative methods to insect control (i.e., biological and microbiological) which will not reduce the value or quality of the treated commodity. The scientific literature is replete with records of insects infesting certain agronomic plants. However, few of the insect-plant interactions have been substantiated. We have developed considerable information on the basic biology of pests preventing export of commodities to certain countries (i.e., Japan). The data have shown that in a number of situations, the commodities are extremely poor hosts at best. These data could be used to support meeting quarantine treatments in lieu of a specific treatment or use of a much less severe treatment. This information would also provide us with a logical baseline to design quarantine treatments that provide security but not overkill as is the case now.

Currently, most dried fruits and nuts are disinfested at least once after harvest and before eventual consumption. If not treated, losses due to damage and reduction in quality would be substantial. We need to develop new methods of treating these high-value commodities that do not impart residues or undesirable reductions in quality. Many alternatives already have been developed such as, controlled atmospheres, hot and cold treatments, behavior modifying chemicals, and microbial control agents. In the future, we need to exploit these methods, to make them more economically competitive and determine how they can be used together with other methods.

In the case of the plant sciences, we need more basic and applied research on the host-pathogen (decay organisms) interactions in order to identify weak links in the pathogen biology. These weak links can be exploited to develop new or less severe commodity treatments. Little is known about the physiological and biochemical basis of inherited traits such as resistance, susceptibility to various environmental factors and quality. In addition to the present research, extension of our understanding of plant physiology and biochemistry will also provide us with insights into improving fruit quality, storage life and consumer acceptance.

Many cultivars of stone fruits and grapes now in commercial use were developed at the Fresno Location. Until the present, most of these cultivars have been developed to increase markets by way of their sensory qualities or increasing the time period for a market. However, we know little about the physiology and biochemistry of what consititues quality and consumer acceptance. We need to have a basic "understanding" of quality so that we can be more selective in our breeding programs. These data could be used to screen out unwanted germplasm at an early date, thus reducing the time required for cultivar development. This information base would also aid plant breeders in understanding the basic mechanisms of inheritance of important traits and thus provide opportunities for "engineering" these traits into new and valuable cultivars. The biochemical basis of resistance to plant pathogens and insects also is little known in these commodities.

Water Management Research Laboratory

As soils and groundwater resources are increasingly subjected to the dangers of degradation of quality and long term pollution, the urgency for progress in understanding the interactive physical, chemical, and biological processes of flow and transport in the unsaturated zone continues to rise. In 1985, water management was selected by the Joint Council of Food and Agriculture as one of the eight national research priorities. Research in water management is critically needed under irrigated agriculture in arid regions where water availability is greatly restricted during periods of drought as recently experienced. Deep percolation of excess irrigation water carrying nutrients (such as nitrates), pesticides (such as DBCP), and toxic elements (such as selenium) degrade the quality of groundwater and irrigation return flows. Bio-accumulation of toxic elements in ponded return flows has caused toxicosis of wildlife and potentially can enter the human food chain.

Excessive deep percolation results in large part from nonuniform infiltration of irrigation water. To compensate for poor uniformity, growers over irrigate the entire field which lowers their application efficiency and causes excessive runoff and deep percolation. Since the cost of reclamation or disposition of drain flow is proportional to its volume rather than its concentration, irrigation practices which minimize or eliminate return flows need to be critically investigated to determine long term effects on physical, chemical, and biological properties of soil, water, and environmental quality in general and in comparison to existing irrigation practices.

CURRENT FACILITIES: DEFICIENCIES AND CONCERNS

The current facilities are old (many built in the 1930s), not up to codes, and overcrowded. They are being used for purposes not originally intended. Those scientists in the temporary laboratory trailers (11,000 square feet, 10 years estimated useful life) need to be moved into permanent facilities by 1995. Others are housed in buildings that do not meet seismic and other codes which would require major renovation to conform. None of the buildings are energy efficient; many are temporary structures. As mentioned previously a design criteria study by the A&E firm of Leo A. Daly in 1986 was conducted but has not been acted upon. This study indicated the need for major renovations of the present facilities to be brought up to codes. Still the facilities would be substandard for their present use. Taking into account the importance of the Location programs to western agriculture we recommend that the Fresno Location be appropriated the funds for permanent and modern facilities.

Facility Conditions

Site: Site pavement is in deteriorated condition. Several band-aid attempts in the past to correct pavement and drainage problems only caused complications. Site parking is inadequate. With the addition of trailer-converted research building complexes and new scientific equipment, the site electrical systems have been taxed to the maximum capacity.

Permanent Buildings: The permanent buildings were constructed in the late 1920s and early 1930s. Since their construction they have been modified to serve as research laboratories, a use not intended in the original plans. Floor space is below optimum in regard to research requirements, and the building layouts are inefficient. There have been numerous alterations and additions to the buildings. All essential building systems are in need of major repairs or replacement due to aging and deterioration.

"Temporary" Trailer-Complexes: The (wood) house-trailer complexes, built at the Location during 1984-1988 to house dislocated research personnel and laboratory facilities from the leased space at the Fresno airport, exacerbated an already-existing overcrowded situation (both for laboratory space and experimental field plots) on the 20-acre site. They are not suitable for research activities and cannot sustain continuous heavy usage. Based on an estimated life expectancy of 10-14 years, these complexes will be unusable and need replacement by 1994-1998.

"Ancillary" Structures (greenhouses, headhouses, garage, screenhouse, storage, etc.): All these structures and utility systems are in various stages of wear requiring replacement or upgrading within the next five years.

Major Deficiencies

* Current facilities are old (many built in 1930s) and are used (as research facilities) for purposes other than originally intended.

* Building configurations are inefficient. Building systems are inadequate and deteriorating due to aging and heavy usage.

* Buildings do not meet current California Title 24 Seismic requirements. Major seismic reinforcement is required. This is particularly true for the permanent buildings.

* Not all facilities meet the Architectural Barriers Act of 1968, as amended, Pub. L. No. 90-480, 42 U.S.C. 4151-4157.

* Energy inefficient: This is particularly true in the case of the "temporary" structures (converted trailer-complexes housing research laboratories).

* Inadequate space resulting in no separation of noncompatible research areas (e.g., insect pathogens vs. insect rearing) and overcrowding situation for researchers and support staff. Lack of space restricts future growth and response to future research needs.

* Site electrical systems are antiquated and inadequate to support major new loads. In some buildings, the inadequate electrical systems hamper the operation of equipment and research activities. Major upgrade is required.

* Most of the research laboratories do not have the required air flow to meet the ARS (and NFPA) Safety Code requirements.

* Short life expectancy of ("temporary") trailer-converted laboratory complexes: These have 10-14 years life expectancy at the end of which will need permanent replacement. Their life expectancy is also being exacerbated by fume hood exhaust. Maintenance and operation costs are exorbitant.

* Floor loads in trailer-converted research complexes are not adequate to support heavy laboratory equipment – resulting in constant floor system failure.

* Machine shop, located off site at the leased space at Fresno airport, was closed in FY 1990 due to safety and security reasons. The lease with the City of Fresno is tenuous. A replacement machine shop is desperately needed – to be located on site at the South Peach location,

* Site drainage: Poor drainage causes constant pavement system failure. Major improvement and pavement replacement are required.

OTHER MAJOR ISSUES AND CONCERNS

Fresno is experiencing major new growth in the area of the ARS Location. There is now housing immediately adjacent to the north, east, and west of the Location. In addition, the city is building a new school less than one-quarter mile south of the ARS property.

The State of California does not permit agricultural spraying of certain restricted materials within one-half mile of occupied residences or one-eighth mile of any school when it is in session. Presently this affects the farming operation in the orchards on the northeast 10 acres of the 20-acre site. With the school being built, the law will potentially affect the operation on the south 30 acres of land acquired in 1988.

NEED FOR NEW FACILITIES

In the light of the above statements, it becomes obvious that the Fresno Location is in desperate need of new facilities if it is to maintain and increase its program productivity into the 21st Century. The planned facilities would integrate all of the existing facilities and staff into one energy-efficient facility. The conceptual study completed by Leo A. Daly in 1986 will provide a basis, after review, for architectural and engineering design of the facility. The study provides spatial arrangements of all components of the laboratory based on program needs, common use areas, and linkage of laboratories having similar requirements, and separation of non-compatible research areas (e.g., insect pathogens vs. insect rearing). Energy efficiency will be maximized and common use areas will be located so as to be readily accessible to those who need them. Heavy equipment (i.e., bioclimatic chambers, centrifuges, chromatographs, etc.) will also be isolated to maximize energy efficiency. Gross floor space for the facility, including a research shop and other out buildings, is estimated to be 97,500 square feet.

The planned design also provides for specialized facilities such as growth chambers, insect rearing rooms, and greenhouses. Specialized equipment suites for electron microscopes, tissue culture, and other methodologies requiring isolation are also provided.

Total costs of the facilities is estimated to be $34,000,000 (Exhibit 1) accounting for contingencies, inflation and construction early in FY 1996.

In conclusion, the Fresno Laboratories are strategically located close to major crop production areas, agricultural universities, and industries – a requirement for the type of research conducted at the Location. The limitations of the present site mentioned above have caused the Agency to consider relocation of the laboratories in order to accomplish anticipated research needs. The estimated cost of acquisition of a new site in the Fresno area is $1,000,000. The two laboratories are conducting research of major significance for the Agency and the nation. New facilities need to be designed and constructed so that the Location can expand and intensify its programs as we progress into the 21st Century.

Exhibit 1

Summary Information for Fresno Location Research Facilities

Full Time Equivalent

26 research scientists, nine support scientists, and 56.5 FTE of visiting scientists, postdoctoral fellows, research technicians, graduate students, administrative and clerical personnel, and wage grade employees

Facilities Scope

Research laboratories, offices, headhouses, greenhouses, common use areas, pesticide, storage research shops, storage, farm center, growth chambers, specialized equipment and facilities, controlled temperature rooms, fumigation facilities, analytical laboratories, plant and insect and cell and tissue culture rooms, insect rearing facility, etc.

97,500 gross ft²

Budget Summary

Facilities		
Planning and design		$3,000,000
Construction		30,000,000[1]
	Subtotal	$33,000,000
Land Acquisition		$1,000,000[2]
	Subtotal	$1,000,000
	TOTAL	$34,000,000

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[1] Assumes completion of construction, special equipment, equipment relocation, demolition, and development of land in the 4th quarter 1995.

[2] Hereafter, notwithstanding any other provision of law, the Agricultural Research Service may offer the property known as the U.S. Horticultural Crops Research Laboratory, Fresno, California, for sale, at fair market value, and any profits from such sale shall be made available for the purchase of land, equipment, or planning, constructing, or operating a replacement facility. Further, the Agricultural Research Service subsequently may lease the property from the purchaser until the construction of the replacement facility has been fully completed.

STATEMENT OF CARE

Mr. Chairman and members of the Senate Appropriations Committee, CARE appreciates this opportunity to submit written testimony on the Fiscal Year 1992 Public Law 480 appropriations.

Private Voluntary Organizations [PVOS], like CARE, Catholic Relief Services, the Adventist Development and Relief Organization, Africare and Cooperative Development Organizations [CDOS] such as the National Cooperative Business Association are the Cooperating Sponsors, with the Agency for International Development [AID], in carrying out the humanitarian and development objectives set forth in Title II of Public Law 480.

There are few programs which so strongly and concretely express America's deep humanitarian concerns and concurrently stimulate economic activities for the agricultural, food processing, transportation and port labor sectors in the United States. Before setting forth our recommendations for Fiscal Year 1992 P.L. 480, Title II appropriations, we are pleased to provide the Committee with an accounting of the food aid resources programmed by CARE in Fiscal Year 1990.

*CARE'S STEWARDSHIP OF FOOD AID RESOURCES IN FISCAL YEAR 1990

In Fiscal Year 1990, CARE managed 40 food aid supported projects in 19 countries, including six African [Ethiopia, Mali, Mozambique, Niger, Somalia and Sudan], six Asian [Afghanistan, Bangladesh, India, Indonesia, the Philippines and Sri Lanka] and seven Latin/Central American and Caribbean [the Dominican Republic, Guatemala, Haiti, Honduras, Mexico, Nicaragua and Peru] countries.

Approximately 22 million people received assistance in the form of food aid through CARE in FY 1990, including:

More than 1.6 million mothers and children participating in Maternal-Child Health programs in seven countries.

More than 11.6 million children in primary school meal programs in four countries.

Approximately 9.9 million people participating in CARE training and community development activities in seven countries.

More than 4.2 million people received food as payment in Food-for-Work Projects in six countries. This includes more than 3.6 million in rural road maintenance and infrastructure programs in Bangladesh, Guatemala and Afghanistan.

Some 341,000 people, primarily rural landless women, participated in Cash-for-Work programs in which the participants were paid with money generated from the sale of food aid commodities.

In two countries, approximately 350,000 people involved in CARE agro-forestry and tree planting activities received food aid.

* Approximately 76% of all the food aid programmed by CARE in Fiscal Year 1990 was made available under Title II of Public Law 480.

Over 4 million people, primarily refugees and displaced persons, received relief assistance, including desperately needed food aid, through CARE's Emergency Logistics and Transport programs and Village Assistance programs in Mali, Somalia, Afghanistan, Sudan, Ethiopia, Mozambique and Peru.

Almost 545,000 metric tons of food commodities were programmed by CARE in Fiscal Year 1990. Twenty-seven types of commodities were programmed, including wheat, wheat flour, corn, rice, bulgur wheat and sorghum. Approximately 111,000 tons of the total were fortified, blended cereals like corn-soya and wheat-soya foods for young children.

The total value of food commodities programmed by CARE in Fiscal Year 1990 was approximately $125,000,000.

We, as the Committee should be, are proud of the Fiscal Year 1990 record of accomplishment. We bring this record of stewardship to your attention recognizing that you seldom have the opportunity to focus on the accomplishments and results of programs which are dependent on the Committee's appropriations decisions.

RECOMMENDATIONS

The Agricultural Development Trade Act of 1990 makes significant and improved policy and operational changes in Public Law 480 which depend on:

1. The timely dissemination of accurate information on commodity prices and availability to private voluntary organizations and USAID Missions.

2. Reliable multi-year commitment and timely shipments.

3. A reasonable level of operating reserves for Title II non-emergency programs.

In past years, the Committee has stressed the need to see improved performance in all these areas. The Agricultural Development Act of 1990 underscores the importance of improving food security and nutrition in developing countries. To meet these objectives and pressing humanitarian needs and to better insure that funds appropriated for Title II are effectively used, we recommend that the Committee re-emphasize and underscore the importance it attaches to timely and well-managed implementation of the three critical program factors areas above.

The private voluntary organizations foresee Fiscal Year 1992 as a year of increased chronic and acute emergency food aid needs, particularly for refugees and displaced persons in Africa and the Middle East. Timely response to these extraordinary emergency needs as well as multi-year commitment to non-emergency Title II programs are essential if the policy objectives of the Agricultural Development Trade Act of 1990 are to be achieved.

Given the Food Security Wheat Reserve provision which authorizes the use of 300,000 metric tons of wheat for Title II emergencies, only minimal amounts of Title II commodities should be set aside for unforeseen emergencies.

The practice of maintaining large uncommitted balances has tended to create end-of-year "surpluses" despite requests for additional Title II commodities. As long as there are opportunities and requests to meet the objectives of Title II, those program proposals should be promptly processed and expeditiously implemented.

Our resolve and commitment to meeting humanitarian and emergency needs should in no way diminish our strong support for the non-emergency, developmental uses of Title II commodities. The non-emergency Title II programs enable beneficiaries to gain a level of self-reliance which is sustainable and preclude their becoming recipients of emergency assistance.

We have noted that the Agency for International Development has moved rapidly in making grants to private voluntary organizations, authorized under Title II of the Agricultural Development Trade Act of 1990, to improve the field management of their programs for this Fiscal Year. However, it is important that AID not regard these Public Law 480 grants for improved field management as a substitute for the centrally funded Title II Food Aid Development and Strengthening grants of $7.5 million to private voluntary organizations made available under the Foreign Assistance Act and appropriated by the Committee.

In cooperation with AID and the Department of Agriculture, a number of private voluntary organizations have made effective use of the sale and barter provisions of Section 416 to carry out development and nutrition programs. Under Title II of Public Law 480, it is normal program procedure for private voluntary organizations to use a portion of the proceeds from the sale of commodities to insure adequate monitoring, accounting, and personnel costs in the country of sale and distribution. These costs constitute normal program costs and insure that the private voluntary organizations can meet the rigid standards of accountability and their own commitment of stewardship for the commodities and sales proceeds. It is therefore recommended that the Committee make clear that a portion of the Section 416 sales proceeds generated by private voluntary organizations and cooperatives may be used for those administrative and personnel costs directly related to the effective administration of Section 416 programs and that these costs be reflected in the budgets of Section 416 proposals submitted by private voluntary organizations and cooperatives.

We will be pleased to respond to any questions from the Committee regarding these recommendations.

CATFISH FARMERS OF AMERICA

STATEMENT OF HUGH WARREN, III, EXECUTIVE VICE PRESIDENT

Mr. Chairman and other members of the Subcommittee, we offer sincere appreciation for your attention to this request for continuing support of the five Regional Aquaculture Centers.

Catfish Farmers of America, Inc., was formed in 1968 and is primarily an association of farm-raised catfish producers, suppliers, processors and marketers dedicated to the profitable growth of the industry. CFA is the nation's strongest aquaculture organization with current membership from thirty-five states. The association provides support to its members by planning and organizing continuing education programs, government relations, information dissemination, meetings and annual conventions.

As the Executive Vice-President of CFA, one of my responsibilities is to be aware of the opportunities and obstacles for our developing United States commercial aquaculture. The enthusiasm to venture into this much publicized, exciting new arena of business must be tempered with a thorough understanding of the marketing difficulties, rigid management requirements and hard economic facts of fish health and water quality.

These concerns are being addressed by the Regional Aquaculture Centers with specific, applied research as directed by an inclusive Board of Directors under the watchful eyes of the Industry Advisory Council and the Technical Committee. Judging from results to date, there can be no question that the wisdom in requiring this definite structuring for oversight is responsible for the successes and cost effectiveness of the qualifying projects.

The 1988 report from a Task Force on Therapeutic Compounds (consisting of representatives of six appropriate federal agencies) to the Joint Subcommittee on Aquaculture identified as a significant obstacle to the continued development of the aquaculture industry, the lack of federally approved therapeutic drugs and other chemicals to reduce disease-induced animal mortality and increase production efficiency and product quality. To reinforce this finding was the determination by federal and state agency representatives along with the private sector during Aquaculture Summits 90' and 91' (co-sponsored by the Aquaculture Coordinators of the U.S. Fish and Wildlife Service and the U.S. Department of Agriculture), that the number one priority for the benefit of aquaculture was in the area of fish health. Here again, the work of the Regional Centers is in the mainstream responding to the industry's identified needs.

Even though catfish farmers do lead our domestic aquaculture industry, these same producers are expressing serious interest in multi-species operations. The Regional Center publications and videos that are available from the Extension Service provide current information on relatively new aquaculture species such as red drum, striped bass and tilapia that may have strong economic promise as companion crops with catfish.

In summary, Catfish Farmers of America believes that significant benefits from the Regional Centers have occurred during these first years and these Centers have formed a working foundation for accelerated returns in the future. The decision of Congress to make this national investment for the Regional Centers is genuinely appreciated.

We respectfully request your consideration of the 1992 FY budget to provide the $7.5 million full authorized level of funding for the five Regional Aquaculture Centers.

Thank you for your attention.

CENTER FOR SCIENCE IN THE PUBLIC INTEREST

STATEMENT OF ROGER BLOBAUM

I am Roger Blobaum, director of the Americans for Safe Food Project of the Center for Science in the Public Interest. CSPI is a nonprofit organization that has 250,000 members nationwide and advocates improved health and nutrition policies. We appreciate this opportunity to submit testimony relating to FY 1992 funding for sustainable agriculture research and extension programs. Our statement begins with a general recommendation covering all these programs. Its main emphasis, however, is on the critical need for adequate funding for the newly-authorized National Organic Standards Board.

CSPI recommends adoption of the FY 1992 budget request for research and extension programs outlined in the attached document. We supported these sustainable agriculture programs during consideration of the Food, Agriculture, Conservation, and Trade Act of 1990 and feel they are essential to continue the transition underway in American agriculture. We participate actively in the coalition that developed this consolidated funding request and urge its adoption.

We want to call special attention to the request for first-year funding for the National Organic Standards Board (NOSB) authorized by Sec. 2119. The Administration is now supporting a $120,000 spending level for the board and for implementation of the newly-authorized organic standards program in FY 1992.

The coalition request of $200,000 included in the attached document for the NOSB was developed early in February before the broad outline of the U.S. Department of Agriculture's implementation plan became available. More recent discussions of the work required suggests $120,000 falls far short of what is needed and that an increase to $200,000 would still be insufficient to maintain the effort needed to complete the implementation process by the September, 1993, deadline. As a result, we urge you to approve $300,000 for this purpose in FY 1992.

It is important to emphasize that the NOSB is directed to carry out a much broader range of activities than other agricultural advisory committees and to complete them in a relatively brief time period. This unique board will work closely with the Secretary in developing an entirely new national program at USDA and making it operational at the state and local levels.

Like other advisory committees, it is directed by law to advise the Secretary regarding implementation of a USDA program. But unlike others, it also has statutory responsibilities that include scientific review and evaluation of a long list of production and processing inputs and the development of rules required to make the national program operational. Statutory responsibilities include proposing a national list of approved and prohibited substances, convening technical advisory panels to conduct scientific evaluation of inputs, reviewing currently-used botanical pesticides to determine whether any should be restricted or prohibited, and advising the Secretary concerning testing for residues from unavoidable environmental contamination.

Much of the work involved in developing national organic standards will be based on years of experience in programs operated by state departments of agriculture and established certification entities. Little work has been done on livestock and processing standards, however, and this responsibility was delegated by law to the NOSB. We believe Congress took appropriate action in charging the NOSB with an unusual number of statutory and other responsibilities. However, in order for the board to be able to carry these responsibilities in the 2-year period allowed, it is critical to ensure that adequate funding is provided.

It seems obvious that the members of this unpaid board will have to be much more active than other USDA advisory committees. It is estimated that the board's work will require at least six annual working sessions lasting two or three days. Adequate financial support is also needed for the technical advisory panels authorized. Finally, it is essential to provide the Agricultural Marketing Service, the lead agency, with sufficient staff to coordinate this work and make certain it is completed on time.

USDA has indicated it is prepared to fully implement this important new program and to complete it in time to meet the statutory deadlines. This is a difficult and complex challenge for an agency that has no first-hand experience with organic standards. We urge you to provide $300,000 for NOSB support to ensure fully and timely completion of the implementation effort.

[CLERK'S NOTE.--See referenced document on page 425.]

CHESAPEAKE BAY FOUNDATION

STATEMENT OF WILLIAM C. BAKER, PRESIDENT

The Chesapeake Bay Foundation (CBF) is a nonprofit organization dedicated to the protection and restoration of the Chesapeake Bay and its resources. CBF has offices in Annapolis, MD, Richmond, VA, and Harrisburg, PA, and operates an agricultural research and demonstration farm in Prince George's County, MD. CBF is committed to influencing actions that will ensure protection of the Chesapeake Bay, its tributaries, and the living resources that are dependent upon these vital natural resources.

To this end, we firmly believe that research, development, and technical information efforts should be accelerated on the practical and efficacious use of biologically based methods of pest control. Critical needs exist for control of insects in wooded areas, of insects and plant diseases on food crops, and of weeds on both crop and non-crop lands.

Specifically, we are concerned about the increased infestations by the gypsy moth in the Bay region and the efforts to control its destruction. Widespread application of chemical pesticides poses a potential threat to the Bay. As well, widespread loss of hardwood trees could be an environmental disaster. Effective pest controls are needed, but the controls need to minimize adverse impacts on the Bay. Biological methods of pest control show great promise, particularly in and near wetlands, in wilderness areas, on recreational lands, and in highly populated residential areas.

We are further concerned about the potential for agricultural and homeowner use of pesticides to contaminate our region's ground and surface waters. Alternative pest control strategies are desperately needed in order to reduce the use of pesticides and to limit their potential to pollute groundwater and the Bay. Biological controls offer some real hope that farmers and homeowners will have non-chemical choices in their battle against pests.

The time has come for the Agricultural Research Service (ARS) to accelerate its efforts to develop biological pest controls. Therefore, ARS should be directed to strengthen its efforts. A number of related activities are now underway at the Beltsville Agricultural Research Center (BARC), but there are a number of serious gaps.

Last year, we requested an annual increased appropriation of $2.40 million to fill gaps at BARC. Although we are pleased that Congress increased the annual appropriation for gypsy moth research by $250,000, most of the gaps we identified still exist. In addition, the public perception of risks associated with pesticide residues in food continues to be a major concern. Therefore, an annual increase in appropriations of $2.15 million is requested to accelerate research on biologically based methods of pest control at BARC. Specifically, research should be accelerated on the practical use of microbial agents, parasites, predators, and naturally occurring chemicals to control pests. Research on these control tactics should be integrated into a systems evaluation of pest and pesticide monitoring data and development research to improve pest monitoring, to refine treatment thresholds, and to develop practical decision support systems. The pest and pesticide monitoring evaluation efforts should be undertaken cooperatively with State Departments of Agriculture, the Agricultural Marketing Service and Animal and

Plant Health Inspection Service. Further, a technical information pilot project conducted in cooperation with the National Agricultural Library and/or a land-grant university should be included.

An increase in appropriations for the following research activities is requested:

(1) Management systems for the gypsy moth in non-forest environments

(2) Microbial agents, parasites, predators, and behavior-modifying chemicals to control insects on vegetable crops

(3) Beneficial fungi and cultural methods to control plant diseases on horticultural crops

(4) Biologically based methods of weed control

(5) Evaluation, prevention, and correction of excessive pesticide residues where they exist in food

We believe that these requests are consistent with the Administration's proposed budget. However, we are concerned that the management, coordination, and integration of various program activities must be strengthened if biologically based methods of pest control are to have a major impact. Therefore, we urge that the requested increases be utilized as part of a deliberately managed and closely coordinated effort at the Beltsville Agricultural Research Center specifically designed to insure that an effective research, development, and implementation program is developed and maintained.

The Chesapeake Bay Foundation appreciates having this opportunity to present our views on this important subject. We hope that you will consider favorably our input.

CHILDREN'S NUTRITION RESEARCH CENTER AND BAYLOR COLLEGE OF MEDICINE

STATEMENT OF BUFORD L. NICHOLS, JR., DIRECTOR, CHILDREN'S NUTRITION RESEARCH CENTER AND D. GAYLE McNUTT, VICE PRESIDENT FOR PUBLIC AFFAIRS, BAYLOR COLLEGE OF MEDICINE

It is a privilege to submit our testimony to the Subcommittee on behalf of the Children's Nutrition Research Center (CNRC). The ongoing recognition by this Subcommittee of the importance of the work of the CNRC and the support you have given its programs, have provided a solid foundation for the Center's future.

As you know, this national center has occupied its new building and has been operating with great success at Baylor College of Medicine in Houston, Texas for the past two and one half years. However, the core laboratory of the CNRC, the Metabolic Research Unit, has not yet been provided with the operating funds necessary to begin work that is of extreme importance to the health of future generations and our nation's agricultural industry.

For example, this unique national center is prepared to begin a major research undertaking to determine nutritional standards during pregnancy. The studies are expected to have a major impact in the nation's effort to reduce the incidence of premature and low birth-weight babies, and in turn, infant mortality.

To illustrate the importance of this effort, the National Institute of Medicine's Division of Health Promotion and Disease prevention estimates that if the U.S. incidence of low birth weight babies can be reduced from 11.5 percent to 9 percent of total deliveries, medical costs would be reduced by $30 million a year and probably another $40 million in savings would result from shorter hospital stays.

The Metabolic Research Unit is ready for activation in the CNRC's new $55 million building. All support facilities for the unit are in place within the present budget of $10.7 million but an additional $4 million will be required to operate the unit itself, which is central to the Center's mission as defined by Congress.

One other key element of the CNRC that remains unfunded is the Food Bioavailability Unit, which will employ a team of agricultural scientists to develop grains and vegetables labeled with non-radioactive tracers to measure the body's use of selected food elements. An annual appropriation of $2 million is needed to operate this unit.

To summarize, the Fiscal Year 1992 request is as follows:

Existing budget	$10,700,000
Activation of Metabolic Research Unit	4,000,000
Establishing Food Bioavailability Unit	2,000,000
TOTAL REQUEST	$16,700,000

Background and Mission

The Children's Nutrition Research Center is the nation's only federal facility dedicated to investigating the food needs that ensure health in pregnant and nursing women, and in children from conception through adolescence.

Research is designed to support the goals of the Department of Agriculture by developing national standards to:

- Evaluate nutritional standards for children, pregnant, and nursing women.
- Develop data on how the diet of a pregnant woman affects her health and that of the child she delivers.
- Determine how the mother's nutrition affects her ability to produce milk, the content of that milk, and the health of the child she nurses.
- Assess the relationship between nutrition and physical and mental development.
- Define food needs for healthy growth and development during childhood.
- Establish safe and effective methods for nutrition research.

Cooperating Institutions

Baylor College of Medicine is one of the leading academic health science centers in the nation and provides a climate of excellence for basic and clinical research. It is located in the Texas Medical Center, the largest medical complex in the United States.

Texas Children's Hospital is Baylor's primary pediatric teaching hospital with a distinguished record of service, education, and research.

Current Activities

A five-year strategic plan for developing the CNRC's programs has been approved by the Council of Scientific Advisors, a council composed of national and international nutrition scientists.

The research goals are included in the Cooperative Agreement between Baylor College of Medicine and the Agricultural Research Service of the USDA. Currently, research is conducted in three laboratories within the CNRC.

Metabolic Research Unit

The Metabolic Research Unit has an in-home program that measures the dietary needs of pregnant and nursing women and their children living outside the Center. Scientific data are collected at home or through day procedures completed at the Center. (Expansion of programs in this unit will include controlled, institutional studies: requested in Fiscal Year 1992.)

Stable Isotope Unit

The Stable Isotope Unit enables nutrient studies in healthy infants and mothers. Stable Isotopes are safe, nonradioactive natural substances in foods that can be used as tracers to follow nutritional processes in the human body. Investigators in the Stable Isotope Unit have developed ways to determine the nutrients required to produce human milk. Studies to determine the body's use of different types of food are being conducted in infants and children.

Body Composition Unit

Research in the Body Composition Unit is focused on how the diet affects the physical development of the body. Standard and specialized techniques are used to assess body growth and its relationship to nutrition in infants, adolescents, and pregnant and nursing women.

Research Summary

ARS human nutrition scientists study how the consumption of plant and animal foods affects the health and well-being of Americans. The Children's Nutrition Research Center has discovered a powerful new tool to determine the quality of the foods we consume. This tool requires the use of "labeled" carbon.

Carbon is a vital element in all living things. It is present in our bodies because all the foods we eat contain carbon. The atmosphere is the source of carbon in our foods. Plants capture carbon from the air and incorporate the carbon into the three basic food nutrients: sugars, proteins, and fats. When poultry and livestock eat plant foods, the carbon from the plants is incorporated into the animals. When we eat foods from animals or plants, the carbon is in turn incorporated into our bodies.

Some carbon-containing nutrients are essential to our health. We must eat these nutrients in our foods, because they are not produced by our bodies. CNRC investigators have found that these essential nutrients remain intact when they go up the food chain from plant to animal to human. The nonessential nutrients, however, are broken down and re-formed from carbon previously stored within our bodies. Nutrition scientists can use the difference in what happens to food carbon in our bodies, to discover new ways to sustain human health and well-being.

The new biochemical tool that CNRC investigators have recently discovered uses a form of naturally occurring carbon to "label" food nutrients. The tool can then be used to determine which food nutrients are essential to sustain human health. Investigators use a gas, carbon dioxide ($C0_2$), in its "heavy" form ($^{13}C0_2$). Normally, "heavy" carbon (^{13}C) can be found in only 1 in every 100 molecules of carbon dioxide. The other 99 molecules contain "light carbon (^{12}C). When investigators grow a plant in a room filled with pure $^{13}C0_2$, its food nutrients become uniquely "heavy." This process "labels" the nutrients with "heavy" carbon. By using instruments that detect the "heavy" nutrients, CNRC investigators can then trace what happens to the "heavy" nutrients after the "labeled" plant is eaten by animals or humans.

For example, at the CNRC we have grown Spirulina, an edible plant, in an environment of pure "heavy" carbon. We fed the plant to a hen that in turn laid eggs containing "heavy" carbon. Egg proteins are made of smaller units called amino acids. The amino acids in the egg proteins from the hen had two "heavy" carbon patterns. In one pattern, all the carbon in the hen's essential amino acids was pure "heavy" carbon, proving that these nutrients were essential from food. In the other pattern, the carbon in the nonessential amino acids was a combination of both "heavy" and "light" carbon, demonstrating that these nutrients were made by the chicken and are not essential from food.

CNRC investigators hope to label other foods in the four food groups with pure "heavy" carbon to use in studies of infants and growing children. Our human nutrition studies will link research in plant and animal production for the direct benefit of human health and well-being. With this new tool, we will determine how specific foods sustain essential nutrients in our bodies.

The CNRC's long-term studies such as these are important to our nation's future health care and to our agricultural industry.

There are also potential savings in health-related costs that far exceed the cost of the research program -- and the benefits to our farmers and ranchers in guiding their selection of produce are of major future importance.

The Appropriations Committee has given the CNRC its strong support in the past and we urge its continued commitment by increasing the Center's annual operating budget by $6 million to $15.8 million so that its full research potential can be realized.

Thank you for your consideration.

COALITION FOR F.D.A. RESOURCES

STATEMENT OF W. DOUGLAS CAMPBELL, EXECUTIVE DIRECTOR

The Coalition For F.D.A. Resources is grateful to have the opportunity to submit written testimony concerning the proper level of appropriations for the Food and Drug Administration for fiscal year 1992.

The Coalition is composed of a number of organizations committed to a level of funding for the F.D.A. commensurate with its duties and with the public health. Current members are: The American College of Cardiology, the American Heart Association, the Animal Health Institute, the Association of Biotechnology Companies, the Council for Responsible Nutrition, the Generic Pharmaceutical Industry Association, the GPIA Animal Drug Alliance, the Health Industry Manufacturers Association, the National Association for Rare Disorders, the National Food Processors Association, the National Pharmaceutical Alliance, the National Soft Drink Association, and the Pharmaceutical Manufacturers Association.*

The Coalition has been gratified by the Chairman's and the Subcommittee's support in the past. The Subcommittee has consistently set the annual high water mark for F.D.A. appropriations, demonstrating its understanding of the needs of this unique national resource. However, despite significantly larger appropriations during the last few years, the agency's needs for additional funds and personnel are now greater than ever.

The Department of Health and Human Services Advisory Committee on the Food and Drug Administration (the "Edwards Committee") has found that the agency is seriously underfunded and is in many respects demoralized. This once again confirms the prior assessments of many policymakers, experts and advocacy groups, including the Coalition.

However, with a vigorous, experienced new Commissioner, the Food and Drug Administration seems poised on the brink of a new era of commitment and competence. There is common agreement that rejuvenation of the agency is desperately needed. While some progress can be made through "administrative efficiencies", inspiring rhetoric, etc., the key ingredient to a turnaround at the F.D.A. is resources. In the past the agency has done admirably with too little money and too few people. But the challenges facing it -- from AIDS and biotechnology to imported foods and the blood supply -- are so formidable that only a large increase in resources will allow it to serve the public well, and in the ways Congress has directed. We cannot keep asking the F.D.A. to make bricks without straw.

*The Pharmaceutical Manufacturers Association concurs with the thrust of this testimony, but has not yet completely reviewed the details. It will convey any clarification of its position on those details to the Subcommittee by separate letter or testimony.

The Administration has acknowledged as much in its FY '92 proposal of $770 million for the F.D.A. Over the last few years it has come a long way in recognizing the extraordinary demands placed on this agency and in taking a longer-term view, for example in its endorsement of the unified campus concept. Yet, the F.D.A. remains a relatively small blip on the total budgetary screen, and may not have received from the Administration the full focus and commitment it deserves.

In addition, the Administration, with no legislative proposal, persists in suggesting that a large portion ($197.5 million) of its total appropriation request be raised by the imposition of user fees. Thus, year after year we and others concerned with the F.D.A. are forced to reiterate our misgivings with the proposed substitution of user fee revenues for FDA's normal appropriation. The F.D.A. is a classic public health/regulatory agency. As such it deserves to be fully funded through regular appropriations. The imposition of user fees for product approvals, inspections, or simply for registration with the agency raises questions of fairness, targeting of funds, and of the distortion of agency priorities.

We are in sympathy with the general intent of those who embrace user fees because they seem the most expeditious way to obtain truly large increases in the F.D.A. budget, but we have seen no proposal which will assure user fee funds will be added above normal appropriations rather than substituting in part or in whole for them. Indeed, the Administration's proposal dedicates much of the fees raised to lowering the federal budget deficit, calling for a reduced F.D.A. budget net of the user fee proposal. This clearly indicates the difficulty of successfully bringing together the various centers of budgetary power to achieve a binding, completely additive, user fee scheme. We thus ask the Subcommittee to recognize the Administration's total of $770 million as an indication that the agency needs at least that much, but to disregard the user fee assumption.

In normal times, the $770 million, representing a twelve percent increase in the agency's budget, along with a six percent staffing increase as contemplated in the President's budget, would be a good start in addressing the many resource needs we and others have identified in years past. Though the Administration's request perhaps does not contain the funds necessary to fairly implement the new Commissioner's desired buildup of enforcement activities without robbing other vital functions, it would be a good start.

However, these other vital functions -- from the approval of new, life-saving, pain-relieving, cost-saving medications to the preservation of the safety of the food supply and the public's confidence in it -- are imperilled by another development, in which Congress played a direct role. During the 101st Congress, lawmakers through new legislation placed upon F.D.A.'s shoulders a greater burden of added duties than at any time during the last twenty years. These new responsibilities obviously represent top Congressional priorities, and there will be intense pressure for the agency to fulfill them, regardless of the level of additional resources it receives. If Congress does not squarely address these new resource demands and fund them fairly, money to carry out the new laws will be shifted from existing programs, which themselves are funded at inadequate levels.

There can be no doubt: people -- patients, consumers, product sponsors -- will be hurt if Congress, following the Administration's lead, forces the agency to absorb the new duties with no additional, dedicated funds. The list of legislation imposing these duties is impressive:

- The Safe Medical Device Act of 1990
- The Nutrition Labeling and Education Act of 1990
- The National Nutrition Monitoring and Related Research Act of 1990
- The 1991 Farm Bill
- The Sanitary Transportation of Food Act of 1990
- The FDA Revitalization Act
- The "Ryan White Bill"

and several miscellaneous programs. If implemented, these activities will improve the health of all. But we cannot expect to receive these added services for free. Implementation of these measures is estimated to cost from $75 million to $165 million in recurring, annual costs, with added personnel demands of from 880 to 1090 F.T.E.'s.

In contrast, the Administration's budget request includes only twenty-five new F.T.E.'s for this purpose (eleven F.T.E.'s for food labeling and fourteen for device reporting). The Administration's budget was largely formulated though the normal, extended process of internal proposal and negotiation, before the passage of the laws imposing the new duties. Unfortunately, after passage of the new laws, the budget was not updated.

Thus, Congress must come forward with the resources to satisfy demands of its own making. We urge the Subcommittee to add at least another $75 million for this purpose to the figure suggested by the President.

Finally, we note that although the Administration has accepted the concept of a unified F.D.A. campus, the $1.7 million in new money suggested in the President's budget to carry out further development of the campus is inadequate. We feel that $10 million should be appropriated for this function, to keep the effort moving at a reasonable pace by funding site studies, engineering and architectural studies, and so forth. The fragmented, cramped, deteriorating conditions of F.D.A.'s office and technical facilities are well known. The unified campus project remains crucial to F.D.A.'s efficiency, to its morale and to its ability to attract high caliber scientists.

We therefore call on the Subcommittee to grant a total direct appropriation to the Food and Drug Administration of $855 million for FY '92.

Mr. Chairman, we again thank you for your consideration of this most important matter. We look forward to your and the Subcommittee's continued support, on behalf of all Americans, of a stronger, healthier Food and Drug Administration.

STATEMENT OF THE COALITION FOR FOOD AID

The Coalition for Food Aid appreciates this opportunity to submit a statement to the Subcommittee on Agriculture, Rural Development, and Related Agencies Appropriations regarding the fiscal year 1992 appropriations for the Agricultural Trade Development and Assistance Act, as amended ("P.L. 480"). The members of the Coalition are: Adventist Development and Relief, Inc., Africare, Agricultural Cooperative Development International, CARE, Catholic Relief Services, Land O'Lakes, National Cooperative Business Association, Save the Children, World Share, and World Vision Relief and Development, Inc.

Our members are private voluntary organizations ("PVOs") and cooperatives that, as P.L. 480 title II cooperating sponsors, commit significant time and resources to implement multiyear food aid and humanitarian assistance programs in developing countries. Our organizations make it possible for U.S.-grown commodities to be used effectively in programs which reach and engage millions of malnourished and impoverished people throughout the world. Beyond meeting basic humanitarian needs, these programs are designed to alleviate the causes of hunger and to promote economic, individual, and community growth, thereby carrying out the policy of the United States Government, as stated in sections 2 and 201 of P.L. 480.

Over 50 of the poorest countries are reached through the title II program. The law requires the provision of at least 1.95 mmt of food in FY 1992, an increase of 25,000 mt over FY 1991. Of this amount, in FY 1992 1.475 mmt are required by law to be earmarked for programs carried out by PVOs, cooperatives, and the World Food Program. This increasing tonnage was implemented as part of the Food, Agriculture, Conservation, and Trade Act of 1990 ("FACT Act"). We believe this is a step in the right direction, noting that National Academy of Sciences/ National Research Council found that food aid needs will double during the 1990's.

Thus, we encourage a funding level for the title II program that is commensurate with these minimum tonnage requirements, as well as the requirement that at least 75 percent of the nonemergency tonnage be in the form of bagged, processed or fortified commodities. Although these products are more expensive than raw commodities, they are very important because of their nutritional value and the ability of the products to be made into edible foods without much additional processing.

We note that the President's budget submission for FY 1992 only estimates that $627 million will be needed to carry out programs under title II. We must disagree. This is an unrealistic estimate since the program tonnage is increasing, emergencies in several African countries have not abated, and this is $69 million below the $696 million FY 1991 appropriations. The additional tonnage and shipping will cost at least $10 million, for a total of $706 million for FY 1992.

Since the President's budget also indicates lower program levels for titles I and III, we are concerned that the Administration's commitment to food aid may be waning in general. Moreover, we notice that the Agency for International Development is lagging behind in approving programs and shipping commodities which must be sent by the end of this fiscal year under titles II and III. Even though our member organizations have requested food for ongoing programs and for emergencies, particularly refugees and displaced persons in Africa and the Middle East, timely response has not been forthcoming.

Mr. Chairman, over the years you have been a staunch supporter of the U.S. Food for Peace Program and its benefits to those in need. This program is unusual, since it not only has humanitarian and development goals, but also is in the best interest of U.S. agriculture. U.S. commodities reach people and countries that could never afford to purchase these products, thus setting the stage for future trade relations.

Mr. Chairman, we therefore respectfully urge you to fund title II at $706 million, reflecting the minimum amount needed to maintain the minimum tonnage levels. Further, we ask that language be included in the Committee report stating the following:

1. Accurate information on commodity prices and availability should be provided to PVOs, cooperatives and AID missions as the multiyear operational plans are being revised for the upcoming fiscal year.

2. Program proposal reviews must be carried out in accordance with law, that is, within 45 days after a proposal is approved by an AID mission, AID Washington must approve or disapprove it, with reasons written. Further, the procedures and regulations must be streamlined pursuant to section 207(c) of P.L. 480, so that the time frame for proposal preparation and review will be shortened and unnecessary paperwork and procedures will be eliminated.

3. Multiyear commitments and timely shipping of commodities is important. The level of operating reserves in a vulnerable country should be increased, since this will allow timely response to extraordinary needs and would permit programs to continue without disruption even when shipments are delayed.

We thank you for your consideration of our requests and would gladly provide any additional data you may need.

STATEMENT OF THE COALITION OF EPSCoR STATES

INTRODUCTION.

The Coalition of EPSCoR States was formed approximately one year ago to work in support of the concepts embodied in the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR). The National Science Foundation established EPSCoR in 1979 for the purpose of developing the capacity of scientists and institutions in eligible states to compete more successfully for Federal research funding from NSF and other Federal agencies.

Characteristics of the EPSCoR States.

Presently, Federal research funding is concentrated in relatively few states and regions of the nation. The 18 EPSCoR states and Puerto Rico, while containing 15% of the United States population, receive only 6.6% of Federal research and development dollars. In contrast, the top five research states, with 27.9% of the population, receive 44.5% of Federal research and development dollars. On the other hand, state support in the EPSCoR states is *twice the national average and over seven times as great on a percentage basis as it is in the state that receives the greatest amount of Federal support*.

The National Initiative for Research on Agriculture, Food and Environment.

As part of its budget request of this Committee, the Department of Agriculture has requested funding in FY '92 for the National Initiative for Research on Agriculture, Food and Environment (the "Initiative"). It is our purpose before this Committee to urge your support for efforts to assure that EPSCoR states are not left out of this Initiative as it moves forward.

We are pleased to see that the Department of Agriculture has set aside 10% of the funds in this program for "research strengthening grants". We are concerned, however, that this amount is not sufficient. Additionally, we are concerned that the program for achieving the maximum improvement in competitiveness possible from these grants needs to be more fully defined. We are again asking the Committee, as it did last year, to set aside an additional 10% for grants to states designated by NSF as EPSCoR States. Awards under this set aside should be coordinated through the state EPSCoR Committees to assure support for the states overall effort to improve its infrastructure and ultimately its ability to compete successfully.

INTRODUCTION.

The Coalition of EPSCoR States was formed approximately one year ago to work in support of the concepts embodied in the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR). The National Science Foundation established EPSCoR in 1979 for the purpose of developing the capacity of scientists and institutions in eligible states to compete more successfully for Federal research funding from NSF and other Federal agencies. The EPSCoR approach involves a coordinated state-wide planning effort, designed to identify programs which will facilitate the creation of pockets of research excellence within each state. Since 1979, 18 states and

Puerto Rico* have been designated by NSF as eligible for participation.

The Coalition was formed to increase awareness of the EPSCoR program, to secure additional funding for it at NSF, and to encourage other agencies and departments of the Federal government to adopt complimentary initiatives. We support, with some suggestions for modification, the Department of Agriculture's efforts to include research strengthening grants within the National Initiative for Research on Agriculture, Food and Environment.

Characteristics of the EPSCoR States.

Presently, Federal research funding is concentrated in relatively few states and regions of the nation. The 18 EPSCoR states and Puerto Rico, while containing 15% of the United States population, receive only 6.6% of Federal research and development dollars. In contrast, the top five research states, with 27.9% of the population, receive 44.5% of Federal research and development dollars. It is not surprising, therefore, -- in fact it may be related, -- that the EPSCoR states tend to have a per capita income that is lower than the national average and substantially lower than the top five research states.

The EPSCoR experiment, while funded at only one-quarter of one percent of the NSF budget, was designed as a first step in addressing this disparity. As detailed in our written submission, the EPSCoR approach involves the establishment of a state-wide coordinating mechanism to:

-- Identify state and institutional barriers to competitive research

-- Develop a comprehensive improvement plan supported by state and institutional resources.

-- Undertake a merit review of all EPSCoR programs and;

-- Implement the improvement plan focusing on infrastructure improvement, research enhancements and human resource development.

The result has been a significant improvement in state support for research and development in the EPSCoR states. Federal support as a percent of total spending for research and development at our research universities continues to lag significantly behind both the national average for Federal support and the percentage of support provided to the top five states. On the other hand, state support in the EPSCoR states is twice the national average and over seven times as great on a percentage basis as it is in the state that receives the greatest amount of Federal support.

The National Initiative for Research on Agriculture, Food and Environment.

As part of its budget request of this Committee, the Department of Agriculture has requested additional funding in FY '92 for the National Initiative for Research on Agriculture, Food and Environment (the "Initiative"). This represents a third

*Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Puerto Rico, South Carolina, South Dakota, Vermont, West Virginia and Wyoming.

step toward an overall program as recommended by the National Academy of Sciences.

We are well aware of the controversy surrounding this Initiative, particularly as it relates to the ability of institutions in EPSCoR states to successfully compete. It is our purpose before this Committee to urge your support for efforts to assure that EPSCoR states are not left out of this Initiative as it moves forward. Absent a specific program to assure improvement in our ability to compete, history would indicate that the majority of funds will once again find their way into a small number of states with established, largely Federally funded, scientific infrastructures.

We are pleased to see that the Department of Agriculture has set aside 10% of the funds in this program for "research strengthening grants". We are concerned, however, that this amount is not sufficient. Additionally, we are concerned that the program for achieving the maximum improvement in competitiveness possible from these grants needs to be more fully defined.

Therefore, we would suggest the following guidelines for a program to assure reasonable geographic distribution in the awarding of Initiative grants:

1. As it did last year, the Committee could set aside ten percent of the funds in FY 92 for planning grants and infrastructure improvement in EPSCoR States. By coordinating with the State EPSCoR mechanisms already in place, this would assure that this funding is integrated with the overall development of the scientific enterprise within these states. The purpose of this infrastructure improvement would be to increase the number and quality of grant applications submitted by EPSCoR states.

2. A goal should be established to have 20% of the actual research grant awards made to EPSCoR states. If the number of high quality research proposals submitted from EPSCoR states is not sufficient to reach this goal, the Department of Agriculture could so report annually to the Congress, together with their suggestions for additional infrastructure improvements to allow that goal to be reached.

Conclusion.

In 1979, NSF, faced with a requirement in its charter that it "avoid undue concentrations of research" initiated EPSCoR in an effort to broaden the distribution of its research funds. As developed over the last decade by NSF, this state-based model has proven effective; two out of the last three engineering research centers awarded by the Foundation went to institutions in EPSCoR states.

We in the Coalition believe that this proven model should be extended to other departments that fund research, including the Department of Agriculture. We do not hold this view alone. In several Congressional hearings, most recently before the Senate Budget Committee, Presidential Science Advisor Dr. D. Allan Bromley has commented favorably on this notion. In addition, the National Association of State Universities and Land-Grant Colleges (NASULGC) has adopted a resolution specifically advocating extension of the EPSCoR model. Our proposal here today is a start in this direction, and we hope that the Committee will give it favorable consideration.

STATEMENT OF THE COALITION ON FEDERAL AGRICULTURE RESEARCH MISSIONS

The Coalition on Funding Agriculture Research Missions (COFARM) wishes to submit for your consideration the following comments on the Fiscal Year (FY) 1992 research budget for the U.S. Department of Agriculture (USDA).

COFARM is a broadly-based coalition united by a commitment to sustained investment in the nation's capacity to produce quality food and fiber in an economically competitive manner which conserves resources and preserves the environment. The Coalitions aim is to ensure that the scientific and technological data base which is necessary to achieve these aims is provided for in a timely manner which insures competitiveness with producers from abroad. Members include scientific and professional societies whose 100,000 members are actively engaged in research, many of whom are engaged and/or trained in agricultural research. COFARM coordinates the efforts of member societies and communicates their programmatic priorities for funding of research and instruction to Congress and other decision makers.

The following professional societies are members of COFARM: American Dairy Science Association, American Institute for Biological Sciences, American Meat Science Association, American Society for Microbiology, American Society of Agronomy, American Society of Animal Sciences, American Society of Plant Physiologists, Crop Science Society of America, Federation of American Societies of Food Animal Sciences, Poultry Science Association, Soil Science Society of America, and the American Phytopathological Society.

GOALS OF AGRICULTURAL RESEARCH

- Strengthen the agricultural, food and environmental system to meet the challenges that confront U.S. agriculture on a global scale.
- Provide the fundamental research needed to overcome technical barriers and speed up the momentum for using the latest advances in science to benefit the U.S. food and agricultural system.

AIMS OF AGRICULTURAL RESEARCH

- Ensure strong economic performance from agriculture.
- Provide the technology base that is necessary for the development of new products, new processes and value-added products derived from agricultural materials.
- Improve and design food products which are highly nutritious and of high consumer quality in order to provide enhanced well-being in our citizens.
- Ensure the safety of foods.
- Understand and develop macro-economic policies which permit U.S. agriculture to remain competitive in world markets.
- Provide the human resources and infrastructure for agricultural research.
- Sustain and enhance the natural resources by developing new scientific and management technology for food and agricultural production.
- Advance the fundamental knowledge of plant and animal systems to provide the technological base to develop broad program areas.

ACTION

COFARM strongly endorses these goals and aims, and urges Congress to implement the recommendations of the National Research Council's Board of Agriculture report, "Investing in Research: A Proposal to Strengthen the Agricultural, Food and Environmental System," by appropriating $500 million for the National Research Initiative Competitive Grants Program (NRICGP) as soon as possible. The investment is justified. The goals and aims are realistic. COFARM recognizes that funds are limited and that full funding in FY 1992 will not occur. **COFARM strongly urges that Congress honor the commitment for annual increases for the program and that the FY 1992 budget for the program be at a level of $200 million on a non-earmarked basis.**

COFARM strongly urges that Congress review and rescind its decision to cap indirect costs and to require non-federal matching funds. When the full cost of research is not paid, it places a severe strain on universities to use funds designated for other student programs. It is especially critical at this time that the federal research programs pay their full share since many state and private institutions are implementing cuts due to decreases of revenues caused by the current economic climate.

COFARM endorses the $39.1 million proposed increase for ARS research. We also endorse the expenditure of $46.1 million for the major modernization of ARS buildings to correct health and safety code violations.

THE RETURN ON INVESTMENT FROM AGRICULTURAL RESEARCH

The nation's early investment in agriculture has produced a system of agriculture that provides cheap, wholesome food and fiber for its citizens. U.S. citizens work fewer hours to pay for food than anywhere else in the world. The consumers' cost for food is 8.5% of their personal expenditures - the lowest in the world. There are no lines in the U.S. for agricultural commodities. The return on prior investments in research on agriculture continues every hour of every day. It has produced the Green Revolution. New technological developments in the basic biological sciences hold the promise for advances in agriculture that will equal or may well surpass those generated by the Green Revolution. A few examples are:

- Transgenic plants have been produced in which the genes for nontoxic biological pesticides from bacteria have been incorporated into target plants and are effective.
- It is possible to produce plants that have built-in defense mechanisms against pests and disease.
- Swine which have been given somatotropin have a lower back fat content.
- It will be possible to produce animals with controlled traits that are nutritionally more wholesome and at a lower cost.
- It is also possible to develop faster, cheaper, more accurate methods for disease detection in animals and plants.
- Advances have been made that permit the management of waste.
- Advances have been made to improve detection of microbiological contamination of foods.

However, despite these significant achievements in our fundamental and practical knowledge of plant and animal systems, there are many technical barriers that must be overcome to speed up the momentum for developing and using these latest advances in science.

A few examples of the technical barriers that require fundamental research are:

- Development of alternative vector systems for incorporating desired genes into plants or animals.
- Identification of tissue-specific promoters for plant cells.
- Development of marketing strategies for locally derived small businesses that develop value-added products.
- Identification and development of pollution prevention practices for agriculture.
- Understanding of how animals partition nutrients to produce leaner or higher quality products.
- The nature of disease resistance mechanisms in plants and animals.
- Understanding of methods to control bacterial growth in food products.

THE ERODING LEAD

The technology lead that the U.S. has in agriculture is eroding. Many countries have implemented agricultural practices developed in the U.S. and have become self sustaining in their food production. Exports are declining. The U.S. has become a net importer of processed foods. New discoveries in the biological sciences promise significant improvements in the production, quality and safety of food products. Many countries, including some developed and most developing nations, have recognized and invested in that potential. **Australia, Canada and the EC all outspend the U.S. in agricultural research.** They are gaining the capacity to expand production and to lower the per unit cost for agricultural products.

Consumers in the U.S. are seriously questioning current agricultural practices that involve the use of pesticides and affect water quality. New regulations in these areas may negatively influence yield and unit cost of food and fiber production. The international and national signals must not be ignored. New technology must be developed if the U.S. is to remain the leader in agriculture. This can only be ensured by an enhanced investment in fundamental food and agricultural research.

PROFILE OF AGRICULTURAL RESEARCH

A recent publication by the National Science Foundation "Profiles-Agricultural Sciences: Human Resources in Funding" (NSF 89-319) summarizes the current status of trained agricultural scientists. Twenty-five percent (25%) of the agricultural scientists in this country are over 50 years of age as compared to 20% for all other life sciences. Twelve percent (12%) of the agricultural scientists are between the ages of 40 and 49 compared to 24% in all other sciences. Agricultural scientists have a much higher age profile and many will retire soon. These statistics indicate that there will be a shortage of agricultural scientists for positions in federal, academic and private research laboratories. They also indicate that a high proportion of present day agricultural scientists have not been trained in modern technologies. This situation must be rectified. The scientific equipment and infrastructure necessary for performing research in agricultural sciences also needs to be modernized.

Although agriculture accounts for assets in excess of $1 trillion, and $39 billion per year in exports, it comprises only 3.22% of the total federal research budget in science.

It was estimated that in 1991, $788.58 million will be expended on research by the USDA, through the National Research Initiative - Competitive Grants Program (NRI-CGP), Agricultural Research Service (ARS), and special grants. Only $73 million of that total, or 9.2%, was expended on fundamental research via the National Research Initiative Competitive Grants Program. NRI-CGP receives less than 0.1% of the total USDA budget. Ninety-eight percent (98%) of all fundamental research in agriculture was funded by the USDA.

COFARM recognizes that in FY 1991 Congress increased the NRICGP by $30 million to a level of $73 million and applauds the increases. However, when the Competitive Grants Program was funded in 1978, the recommendation was for $40 million per year. It was legislatively capped at $70 million per year. If the 1978 $40 million recommended level is adjusted using the BRPDI, then the level of funding for 1991 should have been over $85.8 million. In the thirteen year history of the program, it has never been funded at the level recommended in 1978 (Figure 1). Lack of adequate funding for fundamental research in agriculture is the prime reason that the United State's lead in agriculture is eroding. Both CRGO and NRI-CGP have never been adequately funded. Each year's request far exceed the dollar amount available. The National Research Council has published numerous studies that detail the lack of knowledge in basic plant and animal systems. This lack of knowledge impedes advances in agriculture and its transfer to the field and the consumers table.

The indirect cost cap of 14% that was imposed on all competitive research grants in FY 1991 should be rescinded. The cap, which in effect results in universities subsidizing federal research, causes severe hardship on private and state universities. It, in effect, precludes many university researchers from applying for these grants. It presupposes that each university has available money to support the federal effort. This cap comes at a time when there is a lack of funds at private and state institutions due to the economic downturn. In fact, many universities have been directed to plan for severe cuts in their teaching programs due to lack of revenues. This cap, if it continues, will cause further destruction of the infrastructure of the agriculturally-oriented universities throughout the U.S. The need for upgrading university facilities and for purchasing modern scientific equipment is a matter of record and has been investigated by Congress a number of times. It is ironic that NSF and NIH have programs for upgrading the scientific equipment in universities whereas agricultural researchers must subsidize research through this mechanism.

The indirect costs are real. They have been recognized as such in the report by Bromley and Packard. The ratio of indirect costs to direct costs is relatively stable throughout federal research, varying from 31.1 to 31.6%. COFARM implores Congress to recognize this real cost and to not impose an unfair burden on agricultural researchers.

Agricultural research and development is conducted by the Agricultural Research Service (ARS), universities, the State Agricultural Research Stations, U.S. Forest Service, Economic Research Service and private industry. In 1986, public funding comprised about 44% of the funding and private industry about 55%. Total funding was $4,432.2 million. Only a small proportion of that total was on fundamental research on agriculture. It is probable that this total is less than 5% of the total amount spent on R & D. The level of funding for fundamental research is the weak link in the agricultural system. The amount expended on agricultural R & D is far below the level expended for research by either HHS or NSF, as well as DOE, DOD or NASA. The needs and challenges of agriculture research cannot be met with the present levels of funding for fundamental agricultural research. An investment in the future for agriculture to strengthen the agricultural, food and environmental system must be made.

THE PROMISE OF FUTURE INVESTMENT

- A better understanding of plant and animal biology which will provide the basis for increased competitiveness of U.S. agriculture.
- High quality nutritious and safe foods.
- An adequate food supply to meet the market's and the expanding population's needs.
- Newer, faster and more accurate techniques to assess the microbial, chemical and nutritional quality of foods.
- Funding the initiative at the recommended level would provide for the training of agricultural scientists.
- Conservation of soil, water, and forestry research for future generations.
- Sound basis for marketing and trade policy.

AGRICULTURAL RESEARCH SERVICE

COFARM endorses the ARS request for $39.1 million for increased funding for research. COFARM is aware that slight increases in salary were earned by ARS researchers in FY 1991 and that similar increases are likely to occur in FY 1992. However, we are concerned that these increases were more cost of living in nature and that they did not and will not rectify the disparity that the NSF (NSF 89-319) stated exists between agricultural scientists and other life scientists. The high level of research and the training that is required to perform research in agriculture in the 1990's does not differ from that required for the other life sciences. We suggest that Congress implement a program to assure that the ARS is competitive in scientists salaries with private industry and the universities.

COFARM recognizes that the buildings that ARS wishes to modernize and update for health and safety problems are an absolute necessity. Some of these installations were constructed in the late 1940's or before 1960. The services provided in these buildings are severely outdated and insufficient for conducting experimentation using modern technology.

COFARM RECOMMENDATIONS

THE USDA FY 1992 BUDGET REQUEST FOR THE NRICGP INITIATIVE

COFARM urges Congress to continue to increase its investment in strengthening the Agricultural, Food and Environmental System to meet the challenges that confront U.S. agriculture on a global scale. We recommend that the full $500 million dollars of the National Initiative be funded as soon as possible. The investment is justified. The goals and aims are realistic. COFARM recognizes that funds are limited and that full funding in FY 1992 will not occur. COFARM strongly urges that Congress support the Administration's plan for annual increases for the program and that the FY 1992 budget for the program be at a level of $200 million on a non-earmarked basis.

COFARM strongly urges that Congress review and rescind its decision to cap indirect costs and to require non-federal matching funds. When the full cost of research is not paid, it places a severe strain on universities to use funds designated for other student programs. It is especially critical at this time that the federal research programs pay their full share since many state and private institutions are implementing cuts due to decreases of revenues caused by the current economic climate.

ARS

COFARM endorses the $39.1 million proposed increase for ARS research. We recommend the expenditure of $46.1 million for the major modernization of ARS buildings to correct health and safety code violations. We recommend that the salaries of ARS scientists be made competitive with other life scientists.

COLORADO RIVER BASIN SALINITY CONTROL FORUM

STATEMENT OF JACK A. BARNETT, EXECUTIVE DIRECTOR

Supporting, in part, funds requested in the President's 1992 budget for the Colorado River Salinity Control Program, and asking that additional funds be appropriated.

Total appropriation requested for USDA Onfarm Colorado River Salinity Control	$22,000,000

In fiscal year 1991 the Congress provided $14.78 million for work under the Department of Agriculture Colorado River Salinity Control Program. The President requested that the same amount be appropriated in FY 92. However, studies by the Department of Agriculture and the Colorado River Basin Salinity Control Forum conclude that $22,000,000 is needed in FY 92; $24,100,000 is needed in FY 93; and $26,600,000 in FY 94 if water quality standards are to be maintained in the Colorado River.

There is strong interest and active participation by farmers in the five areas where the program has been initiated. Even a stronger commitment by farmers to implement salinity control measures in the future is demonstrated by the large number of pending applications for participation. Irrigators in the Uinta Basin area of Utah, the Big Sandy area of Wyoming, and the Grand Valley, McElmo Creek, and Lower Gunnison areas of Colorado stand ready to pay their requested share of the cost of this water quality control program, with benefits being felt throughout the hundreds of miles downstream in the United States and Mexico. In addition, the Department of Agriculture is proceeding with actions to implement the Colorado River Salinity Control Program in the Moapa Valley area of Nevada and the Price-San Rafael Rivers area in Utah.

RECENT BACKGROUND
DETAILED FUND ALLOCATION

The onfarm Salinity Control Program was initiated in the 1970's in the Grand Valley of Colorado and the Uinta Basin area of Utah with the use of ACP funds. With legislation in 1984, a Colorado River salinity control program and funding line item were established and the program is now being implemented in these five geographic areas. Three years ago the program was started in the Big Sandy area of Wyoming and the Lower Gunnison area of Colorado. In the newly initiated McElmo Creek area contracts are now being signed by farmers. Within all five areas, many contracts have been signed and many more contracts are being prepared. By the end of the current fiscal year, it is anticipated that all of the FY 91 funds will be designated for contracts and technical assistance. FY 91 funds will be totally committed while many additional basin farmers are ready to cost share and participate.

Three additional areas have been identified in Utah, New Mexico, and Nevada as having very cost-effective salinity control onfarm program potential, and they are included within the overall USDA selected plan. It is planned that the next onfarm salinity control efforts will begin in the Moapa Valley area of Nevada. Under study are the Price-San Rafael area of Utah and the Hammond area in northern New Mexico. These much-needed water quality programs can only move ahead with adequate Federal funding. The Basin states and the local farmers have funds ready to proceed with this partnership and pay at least 51 percent of the cost of this construction program.

Joint studies, in part required under the Clean Water Act, conducted by several federal agencies and the seven Colorado River Basin States have determined the amount of salt which must be removed to meet water quality standards. Jointly adopted plans identify the role of various agencies of government to remove the needed amount of salt. The role of the Department of Agriculture is most important, and funding in FY 92 for this program in amounts less than $22,000,000 would greatly increase the probability of water quality numeric criteria associated with the state-adopted and EPA-approved standard being exceeded.

JUSTIFICATION

The water of the Colorado River system serves some 18 million people and irrigates approximately 1.6 million acres of land in parts of the seven Colorado River Basin states. The River also provides domestic and irrigation water to Mexico. Salinity has long been recognized as one of the major problems in the River. Water users in the lower reaches of the River system have suffered significant adverse impacts due to the River's salinity. These impacts have been estimated to have reached over $300 million a year in the United States. Without the salinity control measures, the salinity of the River is projected to increase beyond the water quality numeric criteria at Imperial Dam, with continued development of the compact-apportioned waters. Without the necessary salinity control measures, the economic damages suffered by the water users could double by the turn of the century.

The Basin states' concern with the River's increasing salinity led them to create the Colorado River Basin Salinity Control Forum in 1973. The Forum, whose members are appointed by the governors of the respective states, developed a salinity control policy that stated that while the Basin states continue to develop their compact- apportioned waters, salinity concentrations must be maintained at or below those levels found in the lower River in 1972. This salinity control objective is the Basin states' adopted, EPA-approved water quality standard for the Colorado River. The standard was adopted pursuant to the Clean Water Act. The policy forms the basis for the cooperative federal/state, Basin-wide salinity control plan. The Forum has a continuing responsibility to see that a salinity control plan is implemented to meet the policy objectives.

After discussions involving the Federal Government, the Republic of Mexico, and the seven Colorado River Basin states, the Congress enacted in 1974 the Forum-sponsored Colorado River Basin Salinity Control Act (P.L. 93-320). Title I of the Act established a program to reduce the salt concentrations below Imperial Dam (the last diversion point on the Colorado River in the United States), so that the United States could honor its 1973 agreement on Colorado River salinity with Mexico. Title I was identified by Congress as a federal commitment. The Act established a program, Title II, which allowed the States and the Federal Government to work together to prevent salinity increases in the Colorado River above Imperial Dam, benefitting users in the United States as well as Mexico. The 1974 Act also created a Colorado River Basin Salinity Control Advisory Council, composed of gubernatorial representatives of the Basin states to advise the Secretaries of the Interior and Agriculture and the Administrator of the Environmental Protection Agency as to needed annual adjustments to the salinity control effort.

In 1984 the Congress enacted much-needed amendments to the 1974 Act. In response to issues first raised by the Forum. The amendments resulted in Public Law 98-569, which authorized additional Department of the Interior and Department of Agriculture activities needed to meet the objectives of the 1974 Act. In recognition of the proven cost-effectiveness of Agriculture's onfarm management activities in controlling river salinity in the Basin, a separate Colorado River Basin onfarm management salinity control program was authorized for the Department of Agriculture.

Should the necessary funding levels in Fiscal Year 91 and future years not be provided for the Colorado River Salinity Control Program, the probability of water quality numeric criteria being exceeded is greatly increased. Further, less than adequate funding today will unquestionably result in significantly higher future costs to implement the same level of salinity control. The Forum urges that due consideration be given to these factors as the Committee recommends the FY 92 funding level for this program.

Consistent with the 1984 congressional authorization and in order to properly assist Agriculture, the Advisory Council made specific recommendations in its 1990 Annual Report relative to FY 92 funding for the salinity control efforts. The funding level needed by the Department of Agriculture to maintain salinity concentrations at or below the adopted salinity standards is the same amount recommended in the Advisory Council's report and the amount the Forum is now requesting.

Jack A. Barnett
Executive Director

RESOLUTION OF THE COLORADO RIVER BOARD OF CALIFORNIA

WHEREAS, the Colorado River Board of California is the State agency charged with protecting the rights and interests of the State, its agencies and citizens in the water resources of the seven-state Colorado River System; and

WHEREAS, the Colorado River is a major and vital water resource for California, the six other Basin states, and Mexico; and

WHEREAS, Colorado River salinity pollution has been a long-standing interstate and international problem; and

WHEREAS, Colorado River water users in California are suffering economic damages estimated at about $250 million per year due to the river's salinity and those damages can be expected to more than double by the turn of the century without salinity control; and

WHEREAS, the Colorado River Basin Salinity Control Forum, composed of Governor-appointed representatives from each of the seven Colorado River Basin states, was organized in 1973 as a mechanism to establish water quality standards for salinity and to promote interstate cooperation in implementing basinwide measures to control the river's salinity pollution; and

WHEREAS, Colorado River salinity standards, including a program of implementation to control salinity pollution, have been adopted by the seven Basin states and approved by the Environmental Protection Agency; and

WHEREAS, Congress, in support of a federal/state basinwide program to control the river's salinity pollution, enacted the Colorado River Basin Salinity Control Act in 1974 and amended the Act in 1984; and

WHEREAS, the federal/state cooperative Colorado River Basin program for control of salinity pollution is cost shared with nonfederal interests, at a minimum of 51 percent nonfederal funding for the Department of Agriculture's onfarm salinity control activities; and

WHEREAS, the Department of Agriculture's Colorado River onfarm salinity control activities have proven to be one of the most cost-effective means of controlling river salinity; and

WHEREAS, the President's proposed 1992 federal budget for the department of agriculture's Colorado River Basin Salinity Control Program includes $14,783,000, the same as was included in 1991; and

WHEREAS, the Colorado River Basin Salinity Control Forum and Advisory Council have recommended that $22 million needs to be appropriated if the program is to proceed in accordance with the plan of implementation for salinity control adopted by the Forum in the 1990 Review; and

WHEREAS, an appropriation less than the $22 million recommended by the Advisory Council will require further increases in FY 1993 and 1994 and possibly beyond to compensate for the delay in implementation of the program as a result of inadequate funding in FY 1991; and

WHEREAS, the Board fully appreciates the federal deficit conditions that now exist.

NOW, THEREFORE, BE IT RESOLVED THAT the Colorado River Board of California supports the budget recommendations of the President with respect to the funding level of the 1992 federal funding for the Department of Agriculture's Colorado River Salinity Control Program but with the full recognition that the funding level is below that needed to implement the Forum recommended salinity control plan, and thus could result in the state adopted and federally approved numeric criteria being exceeded.

BE IT FURTHER RESOLVED THAT the Colorado River Board of California urges the Congress to add $7,217,000 to this line item over and above the President's request to bring the funding level to that needed to maintain the salinity criteria.

Department of Agriculture	Requested Funds
Onfarm cost share program	$ 22,000,000

BE IT FURTHER RESOLVED THAT the Colorado River Board of California wishes to express its deep appreciation for the unwavering Congressional support that has been given to the Colorado River Basin salinity pollution control program over the years and urges members of Congress to continue to provide the support and leadership needed to ensure that the Department of Agriculture receives sufficient funding in 1992 and beyond to maintain the integrity of this vital federal/state program and permit its continued and timely implementation.

State of California)
) ss.
City of Los Angeles)

I, GERALD R. ZIMMERMAN, Executive Director of the Colorado River Board of California, do hereby certify that the foregoing is a true copy of a resolution adopted by said Board at a Special Meeting thereof, duly convened and held in Blythe, California, on the thirteenth day of March 1991, at which a quorum of said Board was present and acting throughout.

Dated the thirteenth day of March 1991.

Gerald R. Zimmerman
Executive Director

COLORADO STATE UNIVERSITY

STATEMENT OF JUDSON M. HARPER, VICE PRESIDENT FOR RESEARCH

Mr. Chairman and Members of the Subcommittee, my name is Judson M. Harper. I am Vice President for Research at Colorado State University, located in Fort Collins. I appreciate the opportunity to submit the following testimony to be incorporated in the record of proceedings before your committee on the fiscal year 1992 budget to support agricultural research programs.

Colorado State University has defined two institutional priorities for continued excellence in agricultural research activities, for which we are seeking appropriations from this committee.

Center for Russian Wheat Aphid Research

- The Russian Wheat Aphid is the most significant insect pest of wheat and barley. Colorado's accumulated losses of $87.9 million since 1986 are indicative of the high losses experienced throughout the region to this pest. The State of Colorado has made the largest state commitment to university research to develop and implement environmentally responsible solutions to the aphid problem and related concerns arising from the impact of traditional insecticide remediation efforts on water quality, human health, food safety, non-target organisms and general environmental quality. Expanded Russian Wheat Aphid research is necessary to solve the complex problems associated with the increasing infestation and its severe economic and environmental impacts.

- Colorado State University respectfully requests that this committee increase the funding available to support Russian Wheat Aphid research to match state commitments. The university is seeking a federal investment of $765,414 for fiscal year 1992. A total of $3.8 million is requested from federal sources over five years (fiscal years 1992 through 1996), and would be matched by an equal amount from state sources.

Animal Reproduction & Biotechnology Laboratory

- The Animal Reproduction & Biotechnology Laboratory at Colorado State University has set the international standard for research and developed excellence directed toward practical methodology in the areas of reproductive biology and genetic engineering of agricultural animals. Much of this work has been aimed at assuring a safe and nutritious food supply while maintaining the economic viability and global leadership role of American agriculture. Construction of a centralized facility at the university would dramatically enhance scientific interactions, training capabilities for scientists and real-world practitioners, and result in more efficient and higher quality basic research and development of practical, cost-effective applications of benefit to the animal agricultural sector and consumers worldwide.

- Colorado State University envisions a budget of $4.8 million for construction of a new facility and renovation of the existing associated facilities. We are seeking a federal investment of $2.4 million in fiscal year 1992 to combine with state and university funds that have already been committed.

The following comments are offered in support of these requests.

Center for Russian Wheat Aphid Research

The Russian Wheat Aphid, first discovered in North America in 1986, is now found in 17 western states, where it has rapidly become the most important insect pest of small grain crops (primarily wheat and barley). If left uncontrolled, it can readily cause over 50% yield reductions. In addition to yield losses due to aphid feeding, the cost of insecticides being used for aphid control is a staggering economic burden for the American farmer. Use of these insecticides also raises important environmental and human health questions.

The impact in Colorado is especially severe because of its climate and cropping systems. Because of the severity of the problem in Colorado, a Russian Wheat Aphid research project was initiated at Colorado State University. The State of Colorado has made the largest commitment of new resources of any state to address Russian Wheat Aphid management, appropriating approximately $1.5 million to date. Colorado State University has redirected $300,000 into this program. The Russian Wheat Aphid funding initiative was developed by representatives of Colorado State University, with strong support from Colorado's wheat farmers and the agricultural industry. A coalition of State Legislators, the Colorado Wheat Administrative Committee, the Colorado Farm Bureau, the State Department of Agriculture and others have been instrumental in securing funding for this program. While this funding is on-going, additional monies are required to solve the problem.

The research program at Colorado State University is a national leader in the development of innovative and environmentally safe pest management programs for the Russian Wheat Aphid. Additional funding of the Center for Russian Wheat Aphid Research will build on and maximize existing investments in the aphid research program at Colorado State University. The center's team of highly qualified scientists having diverse backgrounds will foster the interdisciplinary, collaborative efforts necessary to solve this complex problem. Information and management methodologies developed at the center will be readily applicable to solving the Russian Wheat Aphid problem across the infested area.

There are several critical research areas that are beyond the scope of existing funding. The requested federal appropriation of $3.8 million over five years would permit the program to become truly comprehensive, concentrating on three main program areas:

- New Approaches to Crop Resistance

  Resistant host plants are being developed. The use of crop varieties that can deter or reduce the impact of Russian Wheat Aphids is an ideal, non-insecticide option for aphid management. The development of resistant wheat varieties is an essential component of the research of this program. On-going efforts include the genetic mapping of the Russian Wheat Aphid and efforts to isolate and manufacture the salivary toxin responsible for plant damage to facilitate rapid tissue culture techniques used to identify and develop resistant grain varieties. The release of the first well adapted, resistant variety is expected in the mid-1990s.

- Russian Wheat Aphid and Its Environment

  Researchers are mapping the effects of production practices on the Russian Wheat Aphid, as well as developing reliable statistical tools for determining the extent of infestation and its impact on small grains and alternate hosts such as range grasses. Movement of the Russian Wheat Aphid between alternate host and crop ecosystems at various times of the year and over dramatically variable distances is being mapped. This will be invaluable information for farmers as they make management decisions. Similarly, the safe, environmentally sound use of biological controls (predators and parasites) is being investigated.

- Information Delivery and Technology Transfer

  Cost effective insect management is complex. In decision making, growers must consider a wide variety of factors. Computer-based decision support systems represent powerful new tools that can help assemble this information and provide it to farmers to improve on-farm decision making. Adaptive research at Colorado State University's Center for Russian Wheat Aphid Research will emphasize information delivery and technology transfer to disseminate research results in a usable form to small grain producers.

The biology of the Russian Wheat Aphid and the climate throughout the United States' small grain growing region varies considerably. This requires different management approaches in different states and sub-sets of the western region. For example, information gained from the Pacific Northwest only has marginal applicability to the high plains region. Because of Colorado's central location in the high plains, information gained here has important implications throughout this region.

The National Association of Wheat Growers recommended that $9.5 million/year be directed toward the Russian Wheat Aphid problem, with half directed toward research. To date, Congress has appropriated approximately $700,000 to CSRS in fiscal years 1990 and 1991 to support Russian Wheat Aphid research. Funds were also appropriated to the Agricultural Research Service. Funds appropriated to CSRS have been designated to the states of Washington, Oregon, Idaho and California since 1989, and are inadequate given the magnitude of the problem.

Federal investments to match state and local support are requested by Colorado State University in support of the Center for Russian Wheat Aphid Research as follows:

FY 1992	$ 765,414
FY 1993	814,180
FY 1994	861,589
FY 1995	849,207
FY 1996	586,731
Total	$ 3,877,121

Animal Reproduction & Biotechnology Laboratory

Colorado State University is requesting $2.4 million from the United States Department of Agriculture to match $2.4 million provided by the university and State of Colorado for construction of a new Animal Reproduction & Biotechnology Laboratory and modernization of existing facilities. The Animal Reproduction & Biotechnology Laboratory is a component of the College of Veterinary Medicine & Biomedical Sciences. The College is a regional facility which provides professional veterinary medical education for students from eight western states via the Western Interstate Commission on Higher Education (WICHE). WICHE has designated the program of the Animal Reproduction & Biotechnology Laboratory as the WICHE regional program for graduate education in animal reproduction and animal biotechnology. In addition, the Laboratory was named a "Program of Excellence" by the Colorado Commission on Higher Education. This designation provides funds for graduate education, equipment, sabbatical leaves for faculty, and partial start-up funding for a new, named professorship in animal reproduction.

Faculty of the Animal Reproduction & Biotechnology Laboratory have national and international reputations for excellence in the areas of reproductive biology and genetic engineering of agricultural animals. This group of faculty and students is unique because it blends emphasis on enhancing efficiency of reproduction of livestock with basic research aimed at understanding fundamental mechanisms of reproductive biology. During the past five years, they have pioneered the application of cellular and molecular techniques to the solution of important problems in animal agriculture. Current research goals include: shortening the period of prepubertal, seasonal and postpartum anestrus in ewes and cows; reducing embryonic wastage; enhancing sperm production; producing transgenic animals which are genetically resistant to disease; and improving methods for gamete preservation, *in vitro* fertilization and embryo transfer.

In the future, research in this program will have three major foci: (1) understanding reproductive processes at the whole animal, cellular and molecular levels; (2) enhancing reproductive efficiency of food and fiber producing animals; and (3) solving societal problems in the areas of contraception, treatment of infertility and population control for "problem" animals such as unwanted pets, wild horses, burros and some wildlife species. Most funding for research projects is obtained from national competitive grants aimed at the solution of important national and/or international problems. The faculty has been very successful in competing for USDA and NIH research and training funds.

There are five societal goals and twelve priorities for research, extension and higher education presented by the Joint Council on Food and Agricultural Sciences to the Secretary of Agriculture for 1991. The programs of the Animal Reproduction & Biotechnology Laboratory respond directly to four of the goals and five of the 12 priorities presented.

- **Maintaining a safe, wholesome, nutritious food supply** - On-going Animal Reproduction & Biotechnology Laboratory research aimed at producing transgenic chickens and cattle which are genetically resistant to viral diseases will reduce medications, prevent viral contamination of meat products and should lead to new approaches to control diseases. Clearly, this research should increase the safety and wholesomeness of our food supply.

- **Ensuring a profitable, sustainable food and agricultural sector** - All of the research in the Animal Reproduction & Biotechnology Laboratory is aimed at enhancing the efficiency of reproduction or preventing the negative effects of viral diseases on growth. Practical application of the results will occur only if it is profitable to the producer. Historically, there have been a large number of the procedures resulting from research by the faculty of the Animal Reproduction and Biotechnology Laboratory which have had a major practical impact. Just a few examples are: (1) frozen bull semen; (2) non-surgical embryo transfer in cattle; (3) use of melatonin to induce estrous cycles in sheep; (4) methods to induce estrous cycles, artificial insemination and embryo transfer in horses; (5) computerized sperm motility evaluation; (6) rapid methods for detection of blue-tongue virus in embryos; and (7) development of various instruments for the collection, preservation and storage of semen and embryos.

- **Enhancing global competitiveness in agriculture** - The faculty of the Animal Reproduction & Biotechnology Laboratory played a major role in development of many of the techniques currently used for collection, freezing and shipping of semen and embryos to foreign countries. For example, in conjunction with a Colorado Angus breeding firm, we are currently negotiating a $25 million contract with the Minister of Agriculture of the Ukraine to provide 50,000 Angus embryos to his Republic. We were selected to provide the technical expertise based on our previous record in this area. If lines of chickens resistant to such diseases as Newcastle's disease, influenza, infectious bronchitis, etc., can be developed this will have a major effect on sales of germ plasm to other countries. Likewise, a line of cattle made genetically resistant to such diseases as leukemia virus, hoof and mouth and rinderpest would also have major world markets.

- **Enhancing regional economic opportunities** - Research performed and short courses taught by faculty of the Animal Reproduction and Biotechnology Laboratory led directly to at least 14 commercial embryo transfer businesses in Colorado and several more in the Rocky Mountain region. It also led to the American Breeder's Service establishment of an A.I. stud in Colorado. These are examples of how the programs of the Animal Reproduction and Biotechnology Laboratory have enhanced economic development within the region.

The major impediment to optimal functioning of the team of scientists which comprise the Animal Reproduction & Biotechnology Laboratory is that their research laboratories are located in three overcrowded and outdated facilities which are separated by 3-4 miles. This lack of centralized facilities has hampered interaction between faculty and trainees, resulted in major problems of communication, and caused inefficiency in several areas of research.

To resolve these problems, plans have been developed for a new 22,000 square foot research building, adjacent to facilities currently used for embryo transfer in large animals. This new facility would provide research laboratories and office space for faculty, graduate and postdoctoral students, technical and support personnel. In addition, portions of the existing facility would be renovated to upgrade current facilities and bring 1,400 square feet of space for research animals up to AAALAC standards.

Construction of a new, state-of-the-art research facility for the Animal Reproduction & Biotechnology Laboratory will have a profound impact on both research and training of future scientists. The planned facility would allow all faculty, graduate students, research associates and postdoctoral fellows, and technical and secretarial staff to be housed at a single location for the first time. This will dramatically enhance the scientific interactions and result in more efficient and higher quality research. The location of the proposed facility has been carefully chosen to enhance the use of large animals for research and to allow daily interaction with the molecular biologists associated with the Arthropod-Borne Infectious Diseases Laboratory.

Colorado State University has committed $2.4 million toward construction of a new facility for this program. The university requests $2.4 million from the United States Department of Agriculture to complete the proposed facility construction and modernization.

CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

STATEMENT OF LOREN GEISTFELD, PROFESSOR OF FAMILY RESOURCE MANAGEMENT AND RURAL SOCIOLOGY, OHIO STATE UNIVERSITY

Mr. Chairman and Members of the Subcommittee:

I am Loren Geistfeld, Associate Dean of the College of Human Ecology, professor of Family Resource Management, and professor of Agricultural Economics and Rural Sociology at The Ohio State University. I am testifying today on behalf of the Consortium of Social Science Associations (COSSA), which represents more than 185,000 American scientists across the wide spectrum of social and behavioral science disciplines. A list of COSSA Members, Affiliates, and Contributors is attached.

My specific request relates to the Markets, Trade and Policy National Research Initiative of the USDA/SE/CSRS budget. The FY 1992 Presidential Budget has allocated $2,000,000 to this item. I believe this amount should be increased to $11,000,000 in accord with the recommendation of the National Association of State Universities and Land-Grant Colleges (NASULGC). An increase to $11,000,000 would facilitate conducting the social science research needed to address significant issues related to the economic and social viability of rural America. The Coalition of Consumer, Agriculture and Environmental Groups recommended $12,000,000 for the Markets, Trade, and Policy National Research Initiative reinforcing the need to increase the budgeted amount.

Enhance Foreign trade by Understanding Markets and Trade

The first aspect of the Markets, Trade and Policy National Research Initiative I would like to address is the need to "Enhance Foreign Trade by Understanding Markets and Trade." **Enlightened market development starts with the premise that we identify what the consumer wants; whereas, unenlightened market development starts with the premise that we must convince the consumer they want to buy what we have to sell.** Enlightened development of new international markets will generate additional income that will stimulate economic growth in rural America. It is my belief that enlightened development of new markets will have a greater effect on rural America than will efforts to try to convince other countries to purchase more corn, wheat, soybeans, etc.

The inherent differences between enlightened and unenlightened market development can be illustrated by considering the automobile industry in the 1970s. Japanese automobile manufacturers produced cars that were fuel efficient, comfortable, fun-to-drive, and relatively defect free--things consumers wanted. At the same time American automobile manufacturers tried to convince consumers that they should buy whatever the manufacturer produced--a concept that worked well in the 1950s and 1960s. The conclusion to this story is well known.

Agriculture can avoid this strategic error by researching and developing new international marketing strategies. It is important that we learn what the German, the French, the Japanese, the Dutch, and the Korean consumer wants. Anthropologists, rural sociologists, family economists, agricultural economists, and marketers, in a concerted effort, can address this issue. The food purchase, preparation and consumption patterns of consumers in international markets need to be studied. The food attributes these consumers consider to be the most important must be identified. The sensitivity of food demand to prices and income should be more clearly specified. This information would provide the base needed to develop food products wanted and needed in growing international markets.

The primary economic benefit of this approach is that one would be selling a specialized item. There are many producers of a commodity; however, there are only a few producers of a specialized item. This would generate new jobs because commodities need to be processed into specialized items. In addition, farmers would be provided new outlets for their commodities. **Rural America would benefit, therefore, in two ways: increased farm income and increased non-farm jobs. Social science research is the first step in this effort.**

Enhance the Stability and Well-Being of Families, Youth, and Elderly

Another aspect of the Markets, Trade and Policy National Research Initiative is to "Enhance the Stability and Well-Being of Families, Youth, and Elderly." A particular concern to me is the well-being of the elderly in rural America. When I consider the rural America with which I am most familiar, the Midwest, I see many retired farmers and retired non-farmers living in small towns.

A drive through one of these small towns in 1991 reveals there are no hardware stores, no automobile dealers, and one or two restaurants which frequently go out of business only to be reopened by another aspiring entrepreneur. It is likely that the sole remaining grocery store will close when the owner retires. There are no medical services available in the small town. The population of the town is clearly aging. There are few, if any, families moving into the small town. There are vacant houses, and some occupied houses are clearly used as transient housing. Retired farmers and retired non-farmers clearly dominate the scene.

The issue with which I am concerned is not small towns per se since for thousands of years cities, villages, and towns have emerged only to disappear with the passing of time. Rather my concern is the people of these small towns--especially the elderly. These individuals often have limited access to transportation services. Some of the elderly can drive, but many cannot, and even those who can drive are not comfortable driving any significant distance. However, these elderly must travel to larger towns to receive medical care and soon may have to go to these same towns to purchase food. I have concern about the financial well-being of these elderly since much of their net worth is invested in housing with questionable market value. As is the case for the elderly in general, the elderly of these small towns are on a fixed income; they frequently need medical services; and they often have the type of diet not associated with good health.

Social Science research can help identify ways to improve the quality of life for these rural elderly. Social scientists must develop an alternative retailing system that will provide goods at reasonable prices to the citizens of these small towns while permitting the operators of the retailing system to earn a decent living. Alternative ways to provide quality medical care, at a reasonable cost, must be developed. Transportation alternatives must be found to help the elderly who cannot drive. We need research on housing options for the rural elderly so they are not "locked-in." Research has been conducted or is in progress in some of these areas. For example, there is a research project involving social scientists from several universities that seeks to identify ways to develop new retailing systems; limited research has been conducted to identify the housing problems of the rural elderly; social scientists have on occasion evaluated small town human service programs enabling the towns to improve these services. However, the research base needs to be expanded since the problems are too great to be solved through these relatively few research activities. The important point is that social scientists can, through research, find ways to improve the quality of life for rural Americans.

Conclusion

The research tools of the social scientist can help rural America become a better place to live. Enhancing the economic base of rural America and enhancing the well-being of the citizens of rural America work hand-in-hand. Research on ways to increase international trade will provide the income base needed to create an environment supporting the well-being of families, youth and elderly. Increasing the Markets, Trade and Policy National Research Initiative to $11,000,000 will facilitate the research needed to make rural America a better place to live.

CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

MEMBERS

American Anthropological Association
American Economic Association
American Historical Association
American Political Science Association
American Psychological Association
American Sociological Association
American Statistical Association
Association of American Geographers
Association of American Law Schools
Linguistic Society of America

AFFILIATES

American Agricultural Economics Association
American Assembly of Collegiate Schools of Business
American Association for Public Opinion Research
American Educational Research Association
American Society of Criminology
Association for Asian Studies
Association for Social Sciences in Health
Eastern Sociological Society
Gerontological Society of America
History of Science Society
International Studies Association
Law and Society Association
Midwest Sociological Society
National Council on Family Relations
National Council for the Social Studies
North American Regional Science Council
North Central Sociological Association
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Rural Sociological Society
Social Science History Association
Society for Research on Adolescence
Society for Research in Child Development
Society for the Scientific Study of Religion
Society for the Scientific Study of Sex
Southern Sociological Society
Southwestern Social Science Association
Speech Communication Association
The Institute for Management Sciences

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University of California, Santa Barbara
Carnegie-Mellon University
Center for Advanced Study in the Behavioral Sciences
University of Chicago
University of Colorado
Cornell Institute for Social and Economic Research
Cornell University
Duke University
Emory University
University of Georgia
Harvard University
Howard University
University of Illinois
Indiana University
Institute for Social Research, University of Michigan
University of Iowa
Johns Hopkins University
University of Maryland
Massachusetts Institute of Technology
Maxwell School of Citizenship and Public Affairs, Syracuse University
University of Michigan
University of Minnesota
University of Missouri
National Opinion Research Center
University of Nebraska
New York University
University of North Carolina, Chapel Hill
Northwestern University
Ohio State University
University of Oregon
Pennsylvania State University
University of Pittsburgh
Princeton University
Purdue University
University of Rhode Island
Nelson A. Rockefeller College of Public Affairs and Policy, State University of New York at Albany
Social Science Research Council
University of Southern California
Stanford University
State University of New York at Stony Brook
University of Tennessee, Knoxville
Texas A & M University
Tulane University
University of Virginia
University of Washington
University of Wisconsin, Madison
University of Wisconsin, Milwaukee
Yale University

CONSUMER FEDERATION OF AMERICA

STATEMENT OF PEGGY MILLER

Mr. Chairman, Members of the Committee, the Consumers Federation of America, along with a broad coalition of other organizations, recommends that, at minimum, $138.85 million of the research, extension and marketing budgets of the U.S. Department of Agriculture be directed in FY 1992 to:

> the support and development of programs that encourage far broader analysis, review, implementation, training and marketing on sustainable agriculture methods and resulting crops.

On the full USDA Research, Extension and Marketing budgets, we recommend an FY 1992 budget of $788.45, compared to the USDA FY 1992 request for $826.1 million for these divisions. Of our $788.45 million request, we have highlighted the sections where expenditures are needed to encourage the use of sustainable agriculture practices.

These sustainable agriculture programs should include:

-- establishment of a new interdisciplinary scientific team analysis program (ISTAP) in the Office of the Secretary, at the level of $20 million for Phase One, Year One;
-- establishment of a nationally directed, regionally executed, extension county agent sustainable agriculture training program at the level of $20 million for all agriculture agents;
-- direction of $30 million of the ARS budget towards sustainable agriculture "Integration of Agriculture Systems";
-- increased level in the LISA program to $30 million;
-- marketing and economic structural analysis to encourage broader national and international marketing of resource-conserving and organic crops at the level of $12 million.
-- various new boards and programs to assist in fostering the development of sustainable agriculture practices throughout the country, including the organic certification program and the Technology Assessment Review Board.

An attached summary of the full expenditure of the $138.85 explains these breakdowns more fully than this statement.

Mr. Chairman, this request is similar to the levels we requested last year for sustainable agriculture R&D. In the interim period the 1990 Farm Bill was passed. This bill included many provisions which authorized the establishment of the many programs listed in our budget.

We have endeavored to translate this language into a working budget. We tried to use budget restraint and reflect, wherever possible, cooperation with the USDA budget request approach in our budget approach.

Therefore, you will see that the divisions within our budget correspond to the manner in which the USDA agencies have been divided as well as the subdivisions within the agency, wherever this was possible.

The only areas which escape the normal budgetary lines are in the establishment of ISTAP, the Interdisciplinary Scientific Team Analysis Program and the Extension County Agent Training program:

1) ISTAP would require the drawing of funds from the participating agencies in relationship to their size and level of participation;
2) The County Agent Training Program requires the shifting of funds from other research sources to the Extension Service for the establishment of the national county agent training program in partnership with the LISA regional panel structure.

Since the mid-1970's this Committee, as well as the U.S. Department of Agriculture, has been slowly increasing the levels of research and extension relating to the analysis, development and implementation of sustainable agriculture methods.

The results from such efforts have demonstrated the overall strong benefits to food safety, public health, the environment, rural economic development, income, water quality and supply, air quality and long term continued production capacity resulting from the application of sustainable agriculture methods.

These sustainable agriculture R&D results need to be explored more fully, and transferred more rapidly and more widely to the farming, industrial, and marketing institutions of this country due to the continued serious impacts on water supply, water quality, economic structure, soil, and food safety of the current system.

There are many areas of public concern which are addressed by the use of sustainable agriculture methods:

** Water supply continues to be threatened by the current farming practices, even though advances have been made in the reduction of the use of harmful chemicals.

The Ogallalla Aquifer is being depleted at a rapid rate and no strong attempts have been made to reduce the use of water in the impacted states. In the last forty years it has been reduced by more than half its underground level due primarily to water use in agriculture. Wells are drying up in the southwest and water is having to be shipped from other states and countries at enormous cost.

The drinking water of our major coastal cities is being threatened by advance of sale and chemicals into our fresh water aquifers. Long term production capabilites are threatened as well, particularly in the mid-south and southwest regions.

Sustainable agriculture reduces water use through increased soil tilth and use of water retention and conservation devices. Research shows results of 55%-83% savings.

** Food safety concerns resulting from the use of toxic chemicals in food production and processing, as well as their increased levels in processed foods due to preservation methods, continue. The reduction of chemicals through conservation methods help, but current research has demonstrated that reductions can be carried much further through the integration of biological and total farm systems management.

** Rural economic development has been altered by the transfer to large-scale, chemical input agriculture methods. Towns, small businesses and rural banks have been downscaled or closed due to the change to very large scale farming resulting from chemical inputs and advanced technology.

Though sustainable agriculture does not require small scale agriculture, it does contribute to a more localized business base which stimulates higher income levels related to farming or in secondary businesses related to farming.

Such income levels not only contribute to the overall standard of living in the area, but to the health of the bank, due to the greater lending stimulation. If such rural banks have to be closed due to lack in use, then the taxpayers must contribute to such closings as well as the banking consumer.

The establishment of ISTAP, as well as the Extension county agent training program, and the other redirection programs in our budget will stimulate a far more rapid integration of sustainable agriculture methods into the extension system as well as the broad agriculture research establishment.

ISTAP (Interdisciplinary Scientific Team Analysis Program): It has been demonstrated through the results of research and extension projects on sustainable agriculture that cross-disciplinary team analysis can assist in developing research results that address all policy goals, including environmental and economic impacts.

For example, genetic research in Texas on ways to reduce the moisture requirements for cotton production might benefit from cross disciplinary research on the machinery requirements and impacts, on the impacts to soil from broadened cotton production in the south, on the impacts to current farm machinery investments, and the like.

Teams established by the Office of the Secretary to conduct such analysis and issue reports on the results would help encourage more institutionalized change towards a broader interdisciplinary approach on research. The agencies from which such cross-disciplinary teams should be drawn would include: ARS, CSRS, ES, FS, SCS, AMS, ERS, FNS, and APHIS, as well as others that the Secretary would deem necessary.

By analyzing chosen projects from the individual states and regions in a cross-disciplinary fashion the end results of such analysis could assist industry, academia, policy makers and regulators to determine the broad impacts of scientific research developments before such developments are moved to the implementation phase. Such results might encourage additional research and the development of products linked to the new research results in a way that either minimizes any perceived harmful impacts, or expands on the benefits of new products and new methods.

The results of research are often beneficial, but many researchers as well as industry and policy makers have been seeing an increasing trend, in the present age of high speed information transfer, for farmers and industry to jump into newly developed methods before the broad range of impacts are known.

The tomato harvester in California, the DDT and Kepone disasters, the use of agent orange in forests, the problems with nutrients from feedlots, the leaching of cadmium due to water use and high inputs in deserts, the increase in salinity due to farm methods, are but a few of the cases and problems from utilizing research results before broad based scrutiny was employed.

We believe that phase one of such an interdisciplinary review process should be funded at the level of $20 million. This budget would provide for:

- the establishment of five research teams made up of the cross disciplines within USDA;
- the selection of projects from the various research agencies on the national, state and regional level;
- the salaries, overhead and administration costs of conducting full scale analysis of the selected projects;

  each team would be conducting applied, and, where necessary basic research, to determine the impacts of the research results on the local and regional economies, climate, geology, water, air, public healtn, rural and urban infrastructures, including transportation, as well as on industrial and trade impacts for the purpose of determining the sustainable use when implementing the given research results.

The future phases would include expanding the analysis to cover a broader institutional structure that collaborates on cross-disciplinary research and extension approaches.

Extension National County Agent Sustainable Agriculture Training: We request that $20 million by appropriated for the establishment of this national country agent training program. We recommend that this program funding be allocated to the Extension Service with the provision that they work in partnership with LISA regional panels in the awarding of competitive grants for training and in the establishment of requirements of the program.

Many individual states are currently training some agents in the practices of sustainable agriculture. Still, many sustainable agriculture research results and practices are useful and so transferable from region to region.

The system of selecting only some agents versed in such methods has restrained the transfer of these methods to all farmers and related businesses.

Therefore, a national training program is called for so that all agriculture agents become fully-trained in the many methods and practices of sustainable agriculture production. Such nationwide training and crossfertilization on a national basis will avoid any loss of information transfer and achieve far more rapid information dissemination.

The budget of $20 million will allow some state-matching programs, in fact we allocated $5 million for that need. The remainder, $15 million is just enough to conduct thorough national training programs for all agriculture agents.

It is very critical that all agents receive training in a more nationwide audience of trainers.

LISA, Marketing, ARS Redirection, Organic Certification: These are all critical important features comprising a a full scale sustainable agriculture implementation program. We have endeavored to restrain our recommendations in these areas to the barest minimum of necessary funding so that the components of marketing, and research, and organic certification are fully realized.

Sustainable and biological agriculture continue to show strong promise in meeting the needs of consumers, farmers, and industry within the demands for a healthy, long-term agricultural system. We urge the Commitee to appropriate the full level of our budget request.

[CLERK'S NOTE.--See referenced document on page 425.]

COUNCIL OF 1890 PRESIDENTS/CHANCELLORS

STATEMENT OF DR. WILLIAM B. DELAUDER, PRESIDENT

Mr. Chairman and members of the U.S. Senate Subcommittee on Agriculture, Rural Development and Related Agencies of the Committee on Appropriations, as Chairman of the Council of 1890 Presidents/Chancellors, I submit this testimony on behalf of the 17 black land-grant colleges and universities including Tuskegee University. We sincerely appreciate the opportunity to submit testimony before your distinguished Subcommittee as you deliberate on appropriations for 1992 for research, teaching, and extension.

Today, the black land-grant community is challenged by a new stage in the continued development of research, teaching, and extension for the common good — domestically and internationally. These institutions are becoming a dynamic new force in creating new opportunities in agricultural sciences for talented minority students; furthering knowledge of global climate change and the nature of our environment; creating new and innovative technologies; and, building on the vast resources of the agricultural enterprise in public and private sectors. Our ability to sustain current growth and advancements, will be largely dependent on continued federal investment at the highest level of priority.

As the 17 black land-grant colleges and universities celebrate 100 years of service through research, teaching, and extension, we are expanding efforts to bring about a dramatic change in the competitive nature of our colleges and universities through:

(1) Increased support for the newly established Capacity Building Program;
(2) Continuation of support for the Strengthening Grants Program;
(3) Marginal increase in Evans-Allen funds;
(4) Additional funds for expansion of Cooperative Extension Programs;
(5) Continued support for Cooperative Extension Facilities; and,
(6) Targeted support for significant enhancement of 1890 libraries.

CAPACITY BUILDING PROGRAM

This initiative was created in 1989 to alter the competitive nature of our colleges and universities while expanding programs to strengthen critical academic endeavors including teaching, curriculum, and faculty. In addition, the purpose of the program is to attract and support talented undergraduate/graduate students; facilitate cooperative programs in the public and private sectors; and, conduct undergraduate scholarship programs in areas of national needs.

The establishment of this program reaffirms the importance of the 1890s becoming a major force in producing talent for the 21st Century while addressing the critical problem of underrepresentation of black Americans in food and agricultural sciences. Despite the fact that minorities now comprise more than 21 percent of the U.S. population, a figure predicted to rise to 35 percent by the year 2020, black Americans are disproportionately underrepresented among food and agricultural scientist. National studies indicate that in 1984-85 black Americans earned 2.2 percent of undergraduate degrees, only 44 received master's degrees in agriculture, and 11 were granted doctorates. Blacks constitute around one percent of all agricultural scientists in the work force. It is noteworthy that they continue to loss ground as doctoral recipients compared to other minority groups. These data are compelling in a society concerned about sustaining world prominence in food and agriculture.

A continued and increased investment in capacity building acknowledges the fundamental premise that the preeminence of the nation's food and agricultural enterprise requires sustained support of black land-grant colleges and universities as a vital source of human capital.

This program was authorized at $11-million in 1991 and appropriated at $8.2-million. The Fiscal 1992 Budget Committee of the National Association of State Universities and Land-Grant Colleges (NASULGC) recommends full funding of the program at the authorized level of $11-million. Further, the Committee emphasized that "The Capacity Building Grants Program" "represents a unique and promising opportunity for the 1890s...to significantly improve both teaching and research programs in agricultural sciences."

STRENGTHENING GRANTS PROGRAM

This marginally funded program has had a major impact on the ability of 1890s to recruit and retain talented minorities while promoting greater awareness of educational and career opportunities in food and agricultural sciences.

This program has generated broad-based support from higher education associations, state government, and private industry. In 1989, the 1890s established a joint recruitment project with the Office for the Advancement of Public Black Colleges (OAPBC) of the National Association of State Universities and Land-Grant Colleges (NASULGC). With only marginal funding, the project produced a recruitment video entitled "Hi-Tech Harvest" and a complementary advertisement. The video and advertisement were disseminated to over 5,000 schools, civic and community organizations, and educational and advocacy groups. These recruitment materials have been used by state governments and private industry in promoting interest in food and agricultural sciences. The 1890s have produced model programs that range from summer recruitment programs designed for high school students to intensive educational and career enrichment programs for undergraduates. One USDA official recently stated that "the Strengthening Grants Program has been a catalyst in upgrading the quality of education provided at these institutions."

Today, the U.S. is faced with massive economic challenges that seriously threaten all sectors of our economy and particularly food, agriculture, and natural resource industries. In a report published by NASULGC, the writer suggests that well-educated, creative people are the key to the long-term viability of the food and agriculture system in the nation.

With continued Strengthening Grant support, black land-grant colleges and universities will broaden their response to the magnitude and complexities of attracting and producing human capital in areas of national needs. In addition to strengthening existing programs, new initiatives will be created to support expanded summer enrichment programs for prospective undergraduate students who demonstrate appropriate academic skills and interest in food and agricultural sciences.

Thus, the Council strongly request $2-million for the Strengthening Grants Program to create new and innovative program initiatives while expanding existing programs in our effort to make a difference in the participation of blacks and minorities in food and agricultural sciences.

EVANS-ALLEN PROGRAM

Historically, this program has been the primary source of support for food and agricultural research at the 1890s. The program provides support equal to at least 15 percent of Hatch Act appropriations and is administered under the Cooperative State Research Service.

A recommended increase of $1.9-million is needed to cover increased program costs.

COOPERATIVE EXTENSION PROGRAM

Increased support for cooperative extension will strengthen the scope and quality of existing programs and provide the assistance needed to address the ever increasing consequences of teenage pregnancy and the persistent health epidemic associated with alcohol, drug abuse, and other related problems.

Today, teenage pregnancy and drug abuse exact a heavy toll from limited resource communities in the nation and particularly among those segregated in rural and socially isolated areas. A greater national investment in educational programs will provide black land-grant colleges with the support needed to capitalize on existing relationships among targeted underserved populations. The success of cooperative extension programs coupled with expanded capacity to improve the quality and quantity of services will be a major asset in coming to grips with the deep-rooted problems of teenage pregnancy, drug abuse, and other health problems.

Historically, serving limited resource farmers has been at the core of cooperative extension programs at 1890s. However, the 1890s have lacked the necessary support to promote greater efficiency and profitability among small-scale farmers. Thus, new dollars are essential to promoting sustainable agriculture while providing farmers with more enterprising farming alternatives.

The Council recommends full funding of cooperative extension at the level of $27-million for existing programs and $5-million for Special Targeted Programs including teen pregnancy/health and sustainable agriculture/small scale farmers.

COOPERATIVE EXTENSION FACILITIES

This initiative was implemented in 1988 at the level of $10-million annually for the purpose of making dramatic improvements in the infrastructure of cooperative extension. To fully carry out the land-grant mission and to better serve traditional clienteles, the Council requests continued funding for fiscal 1992 at $10-million annually.

ENHANCEMENT OF LIBRARIES

To ensure significant improvements in the infrastructure of black land-grant colleges and universities, there must be sweeping changes at every level of the institution from the research laboratory to the library. To enhance the scientific and technological capacity of black land-grant colleges and universities, there is an immediate and critical need to significantly improve information-processing capability; expand scientific collections and acquisitions; develop comprehensive database systems; create access to high-quality performance information and research networks; and, facilitate automation and state-of-the-art technology.

Major and ongoing improvements in the quality of libraries on 1890 campuses will ultimately have amplified effects on research achievements in food and agricultural sciences while meeting the challenge of creating advanced academic opportunities for minorities. Although provisions for federal assistance are included in other legislative initiatives for 1890s, the condition of 1890 libraries requires greater targeting of resources.

Thus, the Council recommends a special appropriation of $5-million for enhancement of 1890 libraries. These funds would be administered by the National Agricultural Library of the U.S. Department of Agriculture.

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Mr. Chairman, the Council of 1890 Presidents/Chancellors sincerely appreciates the opportunity to bring these needs to the attention of the Committee.

The nation's black land-grant colleges and universities have been a consistent beacon of success in promoting the land-grant mission while educating a significant percentage of students in food and agricultural sciences. Our ability to continue to build competitive programs in research, teaching, and extension is tied to the nation's willingness to invest in a national resource — black land-grant colleges and universities.

COUNCIL FOR AGRICULTURAL RESEARCH, EXTENSION AND TEACHING

STATEMENT OF ROBERT GUERNSEY, CHAIR

Mr. Chairman and Members of the Subcommittee, I am pleased to appear before you today to offer testimony in support for USDA funding of agricultural research, extension and teaching programs at the land-grant universities. My name is Robert Guernsey. I am a farmer and volunteer from Indiana and I am here today as chairman of the Council for Agricultural Research, Extension and Teaching, known as CARET. CARET is a national organization of volunteer leaders representing agricultural producers, agribusiness, commodity leaders, forestry and range managers, consumers, and local officials. We support the agricultural research and education programs of the land-grant universities and work closely with the administrative heads of agriculture at these institutions under the umbrella of the National Association of State Universities and Land-Grant Colleges (NASULGC).

I would first like to thank you for the support you have given over the years in helping this important research and education to occur. Without your continued leadership, the land-grant institutions will not be able to help keep our food chain productive and safe for consumers here and around the world.

As you know, at the outset the land-grant university system received a Congressional mandate to promote liberal and practical education of the industrial class including agriculture. Our land-grant institutions continue to respond to this mandate. An important feature of this response is the base programs which undergird the agricultural research and education pursuits of these fine institutions. Hatch, Smith-Lever, Morrill-Nelson, McIntire-Stennis and other base program funds provide the necessary infrastructure of these research, extension and teaching programs. To this end, CARET supports a 7.5 percent increase over 1991 levels in both Hatch, Smith-Lever, Evans-Allen and Animal Health base program funding and a continuation of the current funding level for Morrill-Nelson. A 7.5 percent increase would allow these base programs to keep pace with inflation and expand existing programs to needed capacity. We request an 18 percent increase for 1890 Colleges and Tuskegee University and McIntire-Stennis programs. These areas require additional building in order to meet the demands placed upon them. With the decline of real dollar investment in base program funding over the past 20 years this infrastructure cannot adequately respond to all of the pressing concerns that are brought forward. While the ability to respond is inherent in the structure, the means is not always available. The funding of these base programs in agricultural research and education continues to be the first priority of CARET. In order for the land-grant system to respond to the needs of the people its infrastructure must be strong. Base program funding ensures strength.

In addition to the continued base program funding, CARET also supports several important initiatives of the land-grant community. Today I would like to highlight a few of those initiatives and I refer you to the budget document that is attached to this testimony for details on initiatives I do not have time to cover.

Without sound research, all agricultural education programs would lack scientific credibility. Good research provides knowledge that is crucial to maintain and increase this nation's capacity to respond to the challenges it faces.

In FY 1991 Congress appropriated $73 million for the National Research Initiative program, a competitive grants research program that enables the agricultural research community to continue to provide a viable research base that can be accessed in answering the challenges facing American agriculture. CARET realizes that without such research our nation cannot remain competitive. CARET, therefore, supports the NASULGC Division of Agriculture recommendation of $200 million for this program.

The President's budget proposes the funding of an agricultural research facilities program at $25 million. CARET fully supports such a program. In order for quality research to be undertaken, quality facilities in which that research is done are needed. With the proposed 1:1 matching component of this initiative, the money the Congress appropriates can be leveraged to twice that amount.

The Cooperative Extension System has a tradition of successfully bringing the knowledge of the university to the front door of the American citizen. Whether it be through programs such as Extension Food and Nutrition Education Program, urban gardening, integrated pest management, proper fertilizer use and placement, rural development centers or developing youth through 4-H, the Extension Service strives to provide as much help and information as any individual or community needs.

In FY 1992 the Cooperative Extension System has chosen to focus on several priority areas: water quality, youth at risk, food safety and quality, waste management, revitalizing rural America, integrated management systems, sustainable agriculture and specified targeted programs at 1890 institutions. I would like to focus on just a couple of these priority areas and refer you to the attached budget document for other important areas.

Waste management in this country is a large and complex environmental problem that must be solved. Intense educational efforts must be undertaken to achieve a level of understanding that can bring about a reduction in the amount of material for which disposal is required, to encourage recycling, composting, alternative waste disposal and to facilitate community organization and effective management of landfills. The Extension System is already strategically placed to meet this challenge. In my state of Indiana, a specialist has been assigned to waste management. Extension has played a key role in encouraging rural and urban counties to discuss their problems of waste disposal and the need for educational efforts. I have been a part of this dialogue and am pleased to say that rural and metro areas do have common ground. There are opportunities for solutions. If we all work together, we just might make a huge problem a manageable problem.

The Youth at Risk program remains a high priority of the Cooperative Extension System. With the funds appropriated in FY 1991 for this program, Extension has implemented community-based educational programs for youth, parents and local leaders. Communities with high risk factors such as poverty, drug use, teen pregnancy and welfare dependence are the focus of these programs. Additional funding would enable even more high risk communities to be reached. In my home county the budget for a multi-county juvenile detention center capitalizes at $150,000 per bed and has an annual maintenance cost of $40,000 per bed. For three beds, we are looking at $450,000 plus $120,000 annual maintenance cost. Our 1991 total county Extension Service budget for servicing agriculture, community, food and family related problems, as well as staffing for 1000-plus 4-Her's is $147,000. By putting more dollars into youth programs it is hoped that over the long-term less will need to be spent on multi-county juvenile detention centers. An investment in youth at risk programs can bring great benefits to our economy and community leadership.

The revitalizing of rural America is crucial for the overall vitality of our national economy. Such an undertaking, through Extension, would involve business owners and operators, local community leaders, local and state government officials as well as many others. This effort requires support for management and marketing education, increased emphasis on the retention and expansion of existing business, assistance in devising new institutional arrangements to meet family and community needs, and techniques to increase and develop the leadership pool.

1890 Extension targeted teen pregnancy and health and sustainable agriculture for small-scale farmers. Education and support programs need to be implemented which help to reduce the monetary and human costs of teen pregnancy and assist adolescents in general to adopt more healthful lifestyles. And by using low/reduced input agricultural concepts many small farmers can increase their profitability.

Environmental issues continue as a high priority in the land-grant community. The research and extension entities of the land-grant system have joined together to respond to public concern over such issues as water quality, food safety and quality, sustainable agriculture and pesticide usage.

Water Quality research studies the role of agriculture as a supplier, polluter and recycler of surface and ground water. Reclamation of contaminated acquifers and prevention of additional contamination are important goals. Extension efforts in Water Quality activity concentrate on providing education on production and management options and how the interaction of soils, pesticides, nutrients and animal wastes affect surface and ground water. Research and Extension also work jointly in studying the safety of drinking water on the farm and in the rural community.

Food safety research and extension efforts seek to provide for the increased need for research, educational and informational assistance. Such assistance would enable producers to operate within approved usage levels of animal drugs and pesticides as well as help food processors, consumers and others gain a better understanding of proper food handling practices.

Joint research and extension efforts also include the pest control programs of integrated pest management and pesticide impact assessment. These programs help to minimize potential risk to both the consumer and the environment by seeking to reduce the usage of pesticides on crops. Alternative methods and options which promise potential protection from pests are developed and adapted.

The teaching component of land-grant agricultural research and education programs cannot be minimized. Without properly trained and educated scientists American agriculture will suffer. Thus, the entire American populace suffers. We need to guarantee a cadre of professors, researchers, and other educators who can carry on with the important business of keeping American agriculture globally competitive and safe.

CARET supports the funding of several higher education initiatives in the CSRS budget. The funding of a minority scholars program will enable more minority students to be brought into agriculture. Graduate fellowships provide for the development of professionals in agriculture. Presently we have 130 fellowships for the whole country. Also important are the Insitutional Challenge Grants which allow for the recruitment of top students, enrichment of undergraduate science, improvement of faculty and the stimulation of new approaches to curricula. The continued funding of the 1890 Institution Capacity Building Grants program is also fully supported by CARET. This program offers an opportunity to strengthen and broaden academic programs in agriculture and the establishment of new areas or centers of excellence.

In addition, CARET supports the $2 million funding for the agricultural telecommunications network. These funds will be used to support the development and delivery of topical extension and resident instruction programs via satellite. Thirty-three land-grant institutions with strong agricultural programs formed a non-profit agricultural education satellite corporation (AG*SAT) in 1989. The purpose of AG*SAT is to enable the sharing and coordination of educational programs on topical issues facing all of society.

The competitiveness of American agriculture contributes in a major way to overall American competitiveness in the international arena. CARET, therefore, supports the funding of a new International Agriculture Program Initiative. This initiative proposes the investment of a total of $11 million in FY 1992 to support the internationalization of research, education and teaching efforts at state universities and land-grant colleges. Collaborative international research will link U.S. researchers with colleagues abroad who are conducting state-of-the-art research that has direct relevance to the competitiveness of U.S. agriculture in world markets. The Cooperative Extension System will help link U.S. agriculture to the global marketplace. University curricula needs to be internationalized in order to produce graduates who can compete in a global economy. Other educational activities would include internships for students, professional experiences for faculty and student pursuit of internationally oriented studies.

In brief, there are many programs that are currently funded within the land-grant system that make up its agricultural research and education efforts. As you know, these efforts contribute to the economic viability and the well-being of our nation. The land-grant system responds to my needs as well as the needs of my neighbors and state. Much is needed. Land-grant institutions are being requested to provide more assistance than ever before. Without this assistance, in the form of research and education programs, many of the public's needs cannot be met. I am here today as a user of this system to let you know that the land-grant system does in fact respond to the needs of the people. This system has helped me to stay in agriculture and continues to help people find practical solutions to their problems. It is my hope, as chair of CARET, that with your continued wise investment into the research and education infrastructure, that the land-grant community will continue to be able to address current and future problems with vigor and enthusiasm. Thus, our citizens will have the opportunity to utilize the practical information and research. We will be better prepared for a stronger economy and an enhanced quality of life.

For further information, I have attached a page of examples of the some of the areas in which land-grant universities are currently working.

EXAMPLES OF RESEARCH AND EDUCATION DOLLARS AT WORK

- North Dakota Extension assisted in the formation of and provides support to the West Dakota Development Foundation, which finds markets for produce, recruits and organizes growers to supply markets and provides information to markets.

- During the drought of 1988, plant physiologists and agronomists from many of the land-grant universities provided advice about critical plant development stages and about the ways in which water, fertilizer and heat stress factors affect plant yields.

- The University of Wisconsin-Madison scientists developed a wood-based material that is compression-molded at high temperatures to produce a desired shape. This nonwoven composite of wood and synthetic fibers if lighter in weight than current automobile skins and components and one-sixth as costly.

- In 1989 Arkansas reported that through EFNEP 556 youth produced and preserved food with an estimated $77,848 gain in family finances, and 2,173 youth adopted improved diet and health habits.

- The Nebraska Cooperative Extension Service in cooperation with local and state agencies developed an educational program to reduce high concentrations of nitrates in groundwater. Through this program participating producers have been able to reduce nitrate levels in groundwater and save $300,00 or more annually.

- Five new varieties of apples have been developed that are resistant to apple scab, a common fungal disease. These trees have been released to growers and offer the potential to produce superior quality aples without the use of fungicides to control scab. These new varieties are the result of 30 years of cooperative research between Purdue University, the University of Illinois and Rutgers University.

- Plant nutrients are essential for economic crop production. Pests must also be controlled, often through the use of pesticides. Current fertilizer and pesticide application technology results in uniform distribution of these materials across entire fields. Soil organic matter and other soil conditions, however, differ greatly within fields. A sensor has been developed and tested that can determine soil organic matter content and match this to the rate of fertilizer or pesticide application, all while equipment is moving through the field. This has the potential to reduce soil-applied chemicals by 25-50 percent without loss of production, reducing production costs and reducing threats to the environment.

STATEMENT OF THE COUNCIL FOR RURAL HOUSING AND DEVELOPMENT

- The Section 515 rural rental housing program and the Section 521(a) rental assistance program should be funded at the levels included in the Cranston-Gonzalez National Affordable Housing Act of 1990: $739.5 million and $414.1 million respectively.

- The provisions of the Cranston-Gonzalez National Affordable Housing Act of 1990 making certain adjustments to income for purposes of calculating rents should be implemented for the Section 515 program.

- Funds to establish the Rural Development Administration should not be appropriated.

The Council for Rural Housing and Development appreciates the opportunity to provide our thoughts to the Subcommittee on funding for rural housing in FY 92.

By way of background, the Council for Rural Housing and Development is made up of over 370 member organizations, including 20 state affiliations, of individuals involved in all phases of the Section 515 rural rental housing program. Since our inception in 1980, we have been representing the managers, developers, financiers, market analysts, and others involved in the program.

SECTION 515 AND RENTAL ASSISTANCE PROGRAM FUNDING

The Section 515 program represents a highly successful public-private partnership that exemplifies all the positive that can be done when the government teams up with the private sector to deliver a needed service. Congress created the program in 1962 and since then, these low interest loans have been used to create over 450,000 units of affordable housing for elderly, handicapped, and low income rural Americans. The program has been very well run; defaults are at less than one half of one percent, a record unmatched by any other federal housing program.

However, a great need for additional housing persists. A survey conducted by the Farmers Home Administration in June 1990 revealed there was over $2.5 billion of eligible requests for project funding in the pipeline that could have been funded, were the money available. At the same time, there was a need for over 8,000 units of rental assistance. This represents a tremendous need for housing assistance that is going unmet.

President Bush's FY 92 budget proposal would reduce funding of the new construction loan program and substitute a voucher system. CRHD is extremely troubled by this because we do not believe the extant housing stock is available in rural areas to accommodate a voucher system.

Furthermore, a study done by the General Accounting Office in 1987 ("Rural Rental Housing Program: Cost Information on FmHA's Section 515 and Other Rural Housing Options", GAO/RCED 87-96) determined that the Section 515 program was generally the least expensive way to serve very low income households. In comparison, GAO estimated that with the Section 515 program, the 20-year subsidy cost of serving an $8,000 income household was $18,797 compared with $29,015 using housing vouchers.

The Section 515 program does more than provide needed shelter. It provides employment, attracts business, and creates a lasting community asset.

We urge the Appropriations Subcommittee to look to the funding levels in the Cranston-Gonzalez National Affordable Housing Act. In that Act, Congress already recognized the importance of the Section 515 program and the rental assistance program by approving funding levels of $739.5 million for the former and $414.1 million for latter.

RURAL DEVELOPMENT ADMINISTRATION

The President's budget includes a transfer of $73.9 million in FmHA funds and 925 FmHA staff years to the Rural Development Administration (RDA). The RDA, which was established in the 1990 Farm Bill, is to be the new agency to administer the FmHA community and business programs. We understand it was Congressional intent that the rural housing programs not be included under the RDA. However, there appears to be some effort underway to have the Section 515 program included under RDA, thereby splitting the authority over the rural housing programs between FmHA, which would still have jurisdiction over the Section 515 program, and RDA.

We would recommend that before any funds are appropriated to implement RDA, that the agency's structure and purpose be completely identified and agreed upon.

INCOME ADJUSTMENTS

The Cranston-Gonzalez National Affordable Housing Act includes a provision that would allow certain adjustments to be made to tenant incomes before calculating rents. These adjustments include: 1) A ten percent deduction on earned income; 2) An increase in the deduction for dependents from $480 to $550; and 3) a deduction for child support or alimony payments made not the exceed $550. However, the law provided that these changes could not become effective without approval in an appropriations act.

CRHD believes these adjustments will go a long way to relieve tenant rent overburden by calculating rents as a percentage of actual take home pay. Approximately 85,000 tenants, or 22.25 percent of all tenants, were viewed as rent overburdened in FY 90. While vacancies in Section 515 projects are low, a recent turnover survey undertaken by CRHD shows that turnover rates are exceptionally high. We believe this is because tenants are constantly seeking greater affordability. A high turnover rate is, of course, costly to our budget in terms of maintenance. We hope the Subcommittee will approve the necessary appropriations language to place these provisions into effect.

SUMMARY

The Section 515 program is a successful program that fills a desperate need for housing. The rural rental assistance program plays a vital role in providing additional rental subsidy to the most needy. Both these programs should be funded at full levels. We would recommend further study of the establishment of the Rural Development Administration before any funds are appropriated. Finally, we urge the Subcommittee to effectuate through appropriations acts the provisions of the Cranston-Gonzalez National Affordable Housing Act that will allow income adjustments to make rents more affordable.

CRHD appreciates the Subcommittee's consideration of our testimony. We would be happy to provide you with any additional material or answer any questions from the Subcommittee. Thank you.

DELTA COUNCIL-MISSISSIPPI

STATEMENT OF HARRY VICKERY, PRESIDENT

We want to express our appreciation to you for allowing us to submit testimony related to significant agricultural research accomplishments that have been funded by this Committee in the past. My name is Harry Vickery and I currently serve as President of Delta Council, an organization representing farmers and business leaders from the Northwest Mississippi region where more than 70% of our state's agricultural production is grown. Our principal crops of cotton, catfish, rice, and soybeans have benefited immeasurably due to the actions of this Committee to insure that technological advances are aggressively pursued.

Rather than elaborate on specific research accomplishments that have accrued so many millions of dollars to the economy of the Midsouth region due to the research appropriations provided by this Committee, we would like to briefly enumerate our request for continued funding of priority areas with the hope that your Committee will sustain the necessary support for these programs.

(1) Last year, the Congress directed the Agricultural Research Service-USDA to establish new initiatives in water quality research at the Midsouth Research Center and we are pleased to report to you that ARS has taken steps to focus new resources on water quality research as a part of the existing Pesticide Application Technology Center which this Committee and the Congress established at the Stoneville based laboratory approximately four years ago. We are grateful for the Committee's recognition of the importance of water quality research at the Midsouth Research Center, which serves a multi-state region that is extremely dependent upon crop protection tools for agricultural production. We respectfully request that you ask USDA to continue this support in water quality research.

(2) The Pesticide Application Technology Unit established by this Committee at the Midsouth Regional Research Center almost five years ago has set out on a very exciting and ambitious program for identifying the most economical and environmentally sound technologies for the application of crop protection tools on our

major crops. During the fiscal year 1991 appropriations process, House-Senate conferees gave specific guidance to the Department of Agriculture requesting that the work being carried out by this unit should be expanded to include appropriate equipment and aerial application research. Delta Council gladly reports to the Committee that steps are underway by the Agricultural Research Service to analyze methods whereby farmers can utilize less pesticides to facilitate crop coverage; use crop protection tools with greater confidence in on-target application and thus reduce inadvertent drift problems; and finally, provide for safer and more economical application of pesticides for the crop protection purposes in which they were intended. The Pesticide Application Technology Unit is moving in a direction which Congress originally designed several years ago and we respectfully ask the Committee to urge ARS to continue emphasizing this research at the Midsouth Laboratory so that gains can be registered by farmers in terms of economic efficiency and in conservation.

(3) We request that the Committee continue providing the current level of support for cotton ginning research at the three locations of New Mexico, Texas, and Mississippi. This research is vitally important to the future of the cotton production industry. Textile mills are requiring fiber quality characteristics that cannot be maintained without advanced technologies in the cotton ginning industry. Delta Council asks the Congress to urge USDA to provide a list of contemporary projects and accomplishments that are being initiated by the three cotton ginning laboratories, respectively, in order to emphasize and highlight the importance of this work being maintained in future years.

(4) Delta Council requests that the Appropriations Committee and the Congress dedicate the same funding level for fiscal year 1992 as outlined in the fiscal year 1991 appropriations for southern soybean production research. Further, Delta Council requests that the Committee ask ARS to continue the cooperative arrangement which was established with Mississippi State University last year relating to soybean production research while continuing the southern soybean

breeding program at the Midsouth Research Center, as directed by the Congress last year.

(5) We are pleased to report that a joint agreement has been reached between USDA-ARS and Mississippi State University for the construction of pond facilities for the National Warmwater Aquaculture Research Center that was established by the Congress last year. Catfish farmers have worked closely with ARS and Mississippi State University scientists to develop a sound plan for the Aquaculture Center and based upon the specific studies and joint meetings between all parties involved, we would like to request that the Congress provide the necessary funds for construction of the laboratory/office facilities to accommodate the National Center during the fiscal year 1992 appropriations. The plan submitted to the Congress during 1990 has been reaffirmed by research specialists and farmers. Through the work of the proposed center as it relates to water quality, disease research, genetics research and production economics, it is the common view of farmers that the National Warmwater Aquaculture Research Center will serve as the major impetus for expanding the productivity and profitability of aquaculture as a future industrial force in the agricultural sector.

(6) Delta Council requests continued funding of the CSRS grant for aquaculture research at the Stoneville location, to focus on specific, high-priority problems in catfish production such as off-flavor.

(7) The final year of Congressional funding for the Delta "rural revitalization" is requested in order to complete the highly-successful entrepreneurial programs, venture capital programs, industrial quality management programs, and existing industry audit. Enclosed articles relating to the Delta Project, an action plan for developing the existing resources of the Mississippi Delta, as opposed to relying on outside investment, is in its final phase. The fiscal year 1992 appropriations request will complete the Delta Project and a report will be provided to the Congress enumerating accomplishments and economic impacts that have accrued to the region as a result of the fourth and final year of the research project.

(8) Delta Council requests that the cooperative work between the federal Extension Service and ARS on crop simulation research and education be continued at the same level as the fiscal year 1991 appropriations.

The economics of the entire Midsouth region and in some respects, the nation, has been significantly impacted by the positive actions of this Committee all across this country. Certainly, Delta Council fully recognizes that the work of this Committee and the Congress is aimed at identifying high priorities of national interest which will hopefully produce positive results for all 50 states and the nation as a whole. We are tremendously grateful to this Committee for the priorities which have been set forth by you in terms of agriculture and rural development. There is no region of the country which is more dramatically affected by the results of research than the Mississippi Delta. The Appropriations Committee's persistent efforts to provide funding for national priorities in research and technology has reaped huge dividends for the American public and on behalf of the people from our region who rely so heavily on agriculture and the economics of rural America, we express our deep appreciation for your continued recognition of agricultural research.

Respectfully Submitted,

Harry Vickery, President
Delta Council

'Delta Project' Identifies Priorities for Improving Area's 'Quality of Life'

[From the Leland Progress, Apr. 27, 1989]

The "Delta Project" advisory committee identified six research priorities during its recent meeting at Delta State University. Education, leadership, race relations, economic development and infrastructure, poverty and health were the six areas the group selected for priority research.

The Delta Project is a joint effort of several agencies and institutions, including Stoneville-based Delta Council, to study ways to improve the quality of life in the Mississippi Delta.

"We feel that the advisory committee has collectively identified some problems of major concern to the Mississippi Delta if the area is to prosper. Now that we have the research priorities, we can begin to do specific studies into each area," said Hugh Smith of Cleveland, chairman of the Delta Project's advisory committee.

In the area of education the committee cited the need for increased financial support for education in the Delta. Support needs were described in a number of ways including: greater equity funding for poor school districts, more financial aid for education, more job-skills training centers, more adequate physical facilities for the public schools, and a more adequate tax base to support a quality school system.

Adequate leadership at all levels was identified as a high priority by the committee. This included not only a need for better political leadership at the local and county level, but also as a need for all citizens to become more involved in local government law enforcement and community organizations. It was emphasized that leaders must come from and represent all segments of society.

THE COMMITTEE LISTED race relations as one of the major challenges facing the Delta and identified it as one of the most serious obstacles to the region's development. "Unless some measure of harmony and cooperation between the races is achieved in the Delta, it will be difficult to create an environment conducive to economic progress," said the advisory committee in its report. "Factors such as mutual distrust, persistence of stereotypes, black under-representation in community development organizations and unwillingness to work together in community affairs serve to hinder the development of the region."

The need for economic development and improved infrastructure was also identified as a research priority. This priority includes such factors as investment capital, human capital and an environment conducive to economic development, both from a production viewpoint and that of a satisfied labor force. The group listed specific examples such as: an increase in local investment capital, more value-added industries, the need for more substantial and efficiently managed tax resources, the lack of industrial and entrepreneurial skills, the low percentage of the working age population, and improved highways, bridges, schools, housing, water and sewer systems, zoning, recreational facilities and cultural amenties.

The aspects of poverty as cited by the committee included: the large proportion of the population that exists in poverty, high levels of unemployment and under-employment, the highly unequal distribution of income in the Delta with the persistence of a large and underclass, the large percentage of the population that is dependent on transfer payments, the low per capita income of the region, the inadequacy of those payments and the high levels of substandard housing in the Delta.

The final research priority identified was the health care problem. The committee highlighted certain aspects that were identified as insufficient in the health care of the Mississippi Delta. The committee expressed that there are too few doctors, other health professionals and hospitals in the area to serve the Delta population. Also listed as concerns were the disproportionately high rates of infant mortality, teenage pregnancy, health problems of the elderly and drug abuse.

Charles Dean, chairman of the Delta Council Industrial and Community Development Department, said, "This outline can be used as a springboard for further discussion on these topics. The Delta Project advisory committee did a wonderful job of identifying these priority issues, and I am sure that after further research this distinguished group will be asked to get together for more indepth discussions on factors effecting the future of the Mississippi Delta."

Planter Discusses Innovation at Forum for Entrepreneurs

[From the Bolivar Commercial, Jan. 18, 1991]

By Robert H. Smith
BC Staff Writer

A Choctaw community planter, who makes plows in his farm shop, found himself in high cotton Thursday at the Cleveland-Bolivar County Chamber of Commerce.

Dennis Short had the chance to hawk his product to executives and business profs from Cleveland, Greenwood, and Yazoo City. The Delta Council coordinated with Mississippi State University's Social Science Research Center and the Chambers of Commerce in Bolivar, Leflore, and Yazoo counties to put the group together.

Dubbed the Delta Entrepreneurs' Forum, the tri-county association of business people is expected to help entrepreneurs develop business plans they can use when they go looking for financial backing. The forum is just one aspect, though, of a three-fold approach the Delta Council and Mississippi State are pursuing relative to improving the Delta's business climate.

What MSU calls the Delta Project also involves the establishment of a Delta Venture Capital Association and a Delta Inventors' Society. Dr. Frank Hull, a New Jersey consultant MSU has brought in to organize its project, said the inventors' society was to meet for the first time Thursday night in Greenville. The venture capital association was scheduled to organize today. In theory, growing firms hunting capital will be able to submit the business plans the entrepreneurs' forum helps develop to the venture capital association.

What Short told the entrepreneurs' forum is that economics forced him to develop the innovative plow he now builds for others in his Choctaw shop.

He said the soil on his farm suffered from a severe potash deficiency roughly three years ago, and that he ended up adapting for his own needs a plow originally designed by a researcher at the Stoneville agricultural station.

"Being hardheaded, I decided to build my own," said Short. The plow allows him to make up for mineral deficiencies in his cotton fields, thus increasing his yield per acre.

Another farmer Short built one of the plows for experienced a jump in yield from 661 to 1,288 pounds of cotton per acre the second year he used the plow. The improvement was so great the Agricultural Stabilization and Conservation Service(ASCS) was hesitant to certify it, said Short.

Short told the forum he would be willing to give up farming for plow making if the business takes off. He added he's a stickler for quality.

"When we get through, you be ready to sign your name on it for your momma to see," he recalled telling an employee working on a plow. Short said he has built some 10 or 12 plows the past year.

Dr. Hull told forum members Short will probably need $500,000 to $1 million to get his operation out of the farm shop and into the larger marketplace. Short will also need help relative to patenting his innovation, said Hull.

"In agricultural terms, we've got a world-class invention on our hands," said Hull. "The business operation is too large to be managed by a seat-of-the-pants type of operation."

Once Short completed his presentation, forum members were called on to volunteer to be mentors for him. As mentors, they are to be available to give business advice and direction.

Mentors were also solicited at the Thursday meeting for a fledgling Yazoo City firm, the owners-and operators of which brought their product into the room with them.

Chris McEntee and Martha Foose started the Yazoo Futon Company in their home on Yazoo City's Main Street in December. Their primary products are the futon, which is Japanese for a cotton mattress, and the futon frame. McEntee and Foose buy the frames from a firm in Sparta, Tenn.

The two said, however, they would like to enhance their market position by using frames made out of wood indigenous to Mississippi.

"You don't see a frame made out of cypress," said Foose. "You don't see a frame made out of Pecan." Foose and McEntee got their start selling futons to Ole Miss students, and expected students to be their primary customers. The business is expanding, though, as families take an interest in futons.

Hull said the two make their

product well enough and cheaply enough he plans to try marketing it for them in Japan.

Meanwhile, the forum is tentatively scheduled to meet again in Greenwood on March 14, when it will hear from another panel of entrepreneurs.

Delta Inventors, Creators Profit From Chamber's Business Forum

[From the Commonwealth, Mar. 15, 1991]

By TIFFANY TYSON
Staff Writer

Inventors, manufacturers and marketing experts met to exchange ideas Thursday at the Delta Entrepreneurs Forum.

The forum met at the Greenwood-Leflore County Chamber of Commerce at noon.

The forum was established to help creators and inventors market their ideas profitably, according to Ray Heidel, executive director of the Greenwood-Leflore-Carroll Industrial Development Foundation.

"We bring in people who invent or manufacture unique products and match them up with businessmen who can teach them how to market the product and give advice on financing," Heidel said.

Among the idea men at the meeting were Charles Gatlin and Jim Bowen. Gatlin is the only licensed manufacturer of fire trucks in the state. Bowen, an employee of Doyle Nichols, presented Nichols' spray rigs for farmers.

Dr. Frank Hull of New York, a former Greenwood resident, advised the men on marketing and manufacturing their products effectively. Hull was instrumental in establishing the forum, Heidel said.

Hull emphasized the importance of getting patents for any product and establishing written contracts for payment on the products.

About 25 people from all over the Delta attended the meeting.

DELTA WESTERN, INC.

STATEMENT OF LESTER W. MYERS, PRESIDENT AND GENERAL MANAGER

Mr. Chairman and other members of the Subcommittee, thank you for the opportunity to present testimony on behalf of the five Regional Aquaculture Centers. My name is Lester Myers, and I own and operate a catfish farm near Inverness, Mississippi. I also serve as President and General Manager of Delta Western, Inc., Indianola, Mississippi, the largest catfish feed mill in the United States.

We commend the foresight Congress had when they authorized the establishment of the Regional Aquaculture Center program. Since 1987, I have served as Chairman of the Industry Advisory Council for the Southern Regional Aquaculture Center. During this time, my colleagues and I have had an excellent opportunity to recommend, from an industry perspective, issues we felt were of highest priority. Projects were developed by the Center to address these needs. The Regional Aquaculture Center concept has proved to be a very effective structure to coordinate research and extension efforts throughout our nation. The catfish industry is still relatively new, yet it constitutes approximately one-half of private aquaculture production in the United States. Because of the innovative efforts of our producers, and particularly the coordinated efforts of our research and extension scientists, has this achievement been possible.

Even though catfish continue to lead our domestic aquaculture industry, other enterprises are continuing to develop, and additional species are being considered for commercial production in several parts of the country. There are now thousands of aquaculture producers throughout the U.S. who depend heavily on information from aquaculture scientists. These producers, as well as processors, feed mill representatives, equipment manufacturers and others, must rely on up-to-date research information if aquaculture is to reach its maximum potential as a stable and viable U.S. industry. This industry has the potential to supply a much larger portion of finfish and shellfish required by U.S. consumers. An example of this growth is demonstrated by the estimated 8% to 13% increase last year in catfish processing volume above the previous year. The 1990 estimated value of producer sales for catfish was approximately $323 million representing a 20% increase over 1989 sales according to the USDA 1991 Producer Survey.

Results from an economic and marketing project conducted by the Southern Regional Aquaculture Center revealed that catfish is no longer a product consumed only in a limited part of the U.S., but is now being consumed in significant quantities in all regions. Favorable changes in attitudes and perception of farm-raised catfish were evident from the surveys. Analysis of data suggests much potential for market expansion, particularly in the mid-west, the mid- and south Atlantic, and the Pacific Coast states. More research is needed to identify specific market niches within these regions. This information is quite valuable to the marketing aspects of the catfish industry and the trends established here will benefit other segments of aquaculture as well. Without the Regional Aquaculture Center programs, it is doubtful that a project of this scope could have been implemented.

Several other projects conducted by the Southern Regional Aquaculture Center have also been very productive. Scientists from 13 Southern states joined with scientists from Puerto Rico and the Virgin Islands to produce regional extension publications and videos on production practices of more than 10 species common to this region. These publications, which are requested by potential users nationwide, provide useful information regarding current production technology for optimum returns on their investments. More importantly, this information helps explain complex production and marketing skills required for successful aquaculture operations. Without this kind of information available, potential newcomers in aquaculture will not be aware of the serious nature of all risks that must be considered before becoming involved in this industry. An aeration project resulted in the development of a water blender device which may prove successful in significantly reducing night-time aeration costs in fish ponds. These results, along with those from other projects on nutrition, disease control, harvesting and grading technology, and water quality, are most valuable.

However, even with these successful efforts, much still needs to be done. Our industry is dynamic and new problems continue to occur. One of the major benefits we see from programs of the Regional Centers is the excellent opportunity for industry inputs in determining priorities and helping select projects to solve our problems. In addition to producers, there are representatives from feed mills, processing plants, financial institutions, and State Departments of Agriculture serving on the Industry Advisory Councils. These segments comprise the backbone of the aquaculture industry.

The value of U.S. private aquaculture production is increasing, and in 1989 exceeded $600 million. With continuous, up-to-date technical information, the U.S. aquaculture industry has excellent potential for significant growth. Future success of aquaculture depends on continued support of the programs described above. Scientists must continue to develop new techniques and provide additional information to help solve new problems.

In summary, those of us representing the aquaculture industry continue to feel that significant benefits have already occurred from these Regional Center programs. The interest among U.S. aquaculture scientists to work cooperatively on projects developed by these programs has been exceptionally good, and they have produced very positive results beneficial to our industry. We are also convinced that additional valuable information will be forthcoming from these programs if increased funding is made available.

The authorized level of funding for the five Regional Centers is $7.5 million. The total amount appropriated for the Centers for FY 91 was $3.75 million or $750,000 per Region. We strongly request your consideration of the 1992 FY budget to provide the $7.5 million full authorized level of funding for the five Regional Aquaculture Centers. We genuinely appreciate this and other valuable support you have previously provided our industry.

Again, we appreciate the opportunity to offer these comments of support.

Thank you.

DES MOINES CHAMBER OF COMMERCE FEDERATION

STATEMENT OF MICHAEL V. REAGEN, PRESIDENT AND CEO, ET AL.

On behalf of the undersigned organizations, we respectfully submit for the consideration of the Appropriations Subcommittee you chair, the attached proposal for the development of a National Swine-Pork Research Center. The concept, as outlined in the proposal would:

- address national needs and concerns;
- conform to USDA's research goals and missions;
- mesh with, but not duplicate, existing USDA in-house and extramural swine research efforts;
- integrate the human nutritional, environmental and agricultural economic disciplines as they pertain to swine-pork research and production activities; and
- match Federal funding with state, local and private sector contributions.

The evolution of this issue has been growing in number of supporters and strengthening in scientific purpose during the past year of its conceptual development. We feel that the upcoming scientific peer review of the proposal will help us further sharpen and hone this proposal (estimated to cost $2.6 million in Fiscal Year 1992 for planning purposes). It is for this reason that we submit the proposal for your consideration and for printing in the Subcommittee's Hearing Record. We also request that this letter be printed with the proposal.

We appreciate this opportunity to bring to your attention, and the other Senators on the Rural Development Subcommittee, this proposal for the development of a National Swine-Pork Research Center.

As coordinator of this effort, Dr. Michael Reagen, President and CEO, Greater Des Moines Chamber of Commerce Federation, can be reached at (515) 286-4979 if any questions arise on the details of the proposal or other issues related to the proposed facility.

Thank you for this opportunity to submit, for the record, this letter and attached proposal.

Respectfully,

Robert D. Ray

Robert D. Ray, President
Blue Cross/Blue Shield
of Iowa

Thomas N. Urban,
Chairman & President
Pioneer Hi-Bred Intl.

Mike Telford,
Executive Director
Iowa Pork Producers Assn.

Jon Caspers

Jon Caspers,
Past President
Iowa Pork Producers Assn.

Michael V. Reagen, Ph.D.,
President & CEO
Greater Des Moines Chamber
of Commerce Federation

Michael Crow

Michael M. Crow, Ph.D.,
Director
Institute for Physical
Research & Technology
Iowa State University

Proposal for the development of a

National Swine-Pork Research Center

The Issue

The pork industry is a major value-added economic sector. In 1989, for example, this industry generated $3.5 billion in cash farm sales. This represents $20 billion in economic activity annually when the output multiplier effect is considered. Pork production and processing is vitally important to the economic well-being of rural communities throughout the Midwest and in concentrated areas in other regions of the U.S. For example, a typical rural trade area in the cornbelt currently markets 400 hogs per square mile. This generated on the average in the 1980s $4.3 million in cash sales and almost $9 million in economic activity for an individual community of 100 square miles.

Much of the nation's farming is based heavily on grain and oilseed crops. A high percentage of these commodities must be utilized in the production of meat and milk. Pork production in a good year can actually triple the value of corn produced. This greatly enhances income potential for family farms and provides an essential base for nutrient recycling which is an important component of a truly sustainable agriculture dedicated to conserving the natural resource base of grain producing regions.

The proposed center described in this document including a new USDA-ARS research unit and an appropriate collaborating research university creates an ideal environment for achieving the vision for the best research unit of its type in the world. Research will concentrate on animal behavior and management, environmental concerns, and genetic enhancement for product desirability. In addition, a major component of research for the proposed center is dedicated to pork quality, safety and international trade. It will also contribute to economic development in rural areas by expanding the use of locally-produced grains and oilseeds in the production and processing of high-value meat products.

The elements of this plan were developed by those in many scientific disciplines along with pork industry leadership and representatives of the business community.

Objectives

The overall goal of the center will be to accomplish high priority research which will contribute to improved production, utilization and marketing of pork and pork products characterized by the highest standards of nutrition, safety and desirability. The center will serve as a research site for six broad areas: behavior, facility design and management; waste management systems; product composition and desirability; product utilization and marketing; genetic enhancement for competitiveness and product desirability; and reproductive performance. To meet this general objective, a joint team of basic and applied animal scientists, economists and agricultural engineers will study a variety of research areas devoted to improved, more efficient and humane swine production and utilization of pork.

Research Programs to Accomplish the Objectives

1. Behavior, Facility Design and Management

Because of the many alternative resources and environments utilized in the production of swine, there is a strong need for determining the best or optimum combinations of these factors for maximum, humane, and efficient swine production. This field of research is often referred to as animal management systems. Impacts of such work can result in improved utilization of resources, improved animal environments, improved working conditions and improved animal production. The work should be strongly oriented to development of inputs for computer simulation, product quality, evaluation and a variety of interactive parameters which influence production and marketing decisions and thus the profitability of swine enterprises. The nature and success of this type of research depends heavily upon data generated in several fields of study.

A. Effect of Environment on Animal Behavior and Performance

1. Justification

   Environmental conditions have marked influences on the behavior and performance of swine. These include stresses which effect the incidence and severity of diseases, thermal and nutritional energy requirements, reproductive efficiency (age at puberty, estrus, embryo survival) and death loss. Improving the environment involves research to determine optimal needs, methods of supplying these needs and the cost of supplying an ideal environment. Measurement of tradeoffs between costs of environmental control and animal response are needed to determine effective environmental conditions.
2. Research Objectives
   - a. Determine the optimal environmental requirements for production, reproduction, animal comfort and reduced disease transmission by studying the effects of animal density, temperature, air quality and movement, lighting and other factors

   b. Determine methods of efficiently controlling the environment, possibly including the use of heat exchangers to recover heat losses and methane generation from the waste (heat storage areas could be used as a source of cooling during the warm seasons to provide a cool environment to enhance reproduction)
   c. Develop computer simulation programs which include optimal environmental requirements to efficiently meet these needs while meeting least-cost production requirements

B. Environmental Effects of Swine Production

1. Justification

Much is known about biological and environmental factors affecting the production of average-producing animals. Less is understood about some of these same factors as they relate to the reproductive and productive efficiency of the higher- or better producing animals. Evaluating environmental conditions, may reveal that higher- and more-efficient-producing animals have additional or different requirements than average animals. Examining these factors and their interactions may improve total production and the efficiency of production as well as provide additional information for computer programs exploring alternatives in decision making processes. These efficiencies need to be examined first to determine changes on nutrient needs, etc., and secondly from an economic front to determine economic comparisons of high-producing animals.

2. Research Objectives
   a. Evaluate and determine the extent to which biological and environmental factors affect reproductive efficiency in high-producing sows
   b. Examine and characterize the biological and environmental factors affecting milk production in high-producing sows
   c. Study the broad spectrum of biological and environmental factors and their interactions which determine maximum product output and efficiency of product development
   d. Examine the economic efficiency of selected biological and environmental factors to determine combinations most beneficial to commercial swine producers

C. Evaluation of Facility Design and Management Systems in Swine Production

1. Justification

There are numerous uncertainties relative to animal facility design and handling of swine wastes upon swine enterprises in the future. Factors such as water and air qualities, odor control, dissemination and incorporation of wastes into the soil, and fertilizer value of swine wastes all need additional evaluation. Assessments of the impact of these factors upon the kinds and sizes of waste handling systems and thus sizes of swine enterprises need clarification. Information on effective incorporation (disposal) of waste as well as cost effective integration of swine waste into a cropping program is needed. Innovative, low-cost animal housing designs are essential for pork producers to be most competitive.

2. Research Objectives
   a. Define and develop adequate swine housing and support facilities for competitive, humane pork production

D. Integrated Livestock Production

1. Justification

With the increasing costs of producing livestock products, it is imperative that the livestock industry expand its efforts to devise livestock production systems that will curtail the rise or control the costs of production. In recent years there has been a trend for producers to become more specialized, thus reducing the number of livestock species in a given enterprise. In addition, there has also been a tendency for producers to become more specialized within species, often segregating various phases of production. This development has created widespread competition among producers of livestock within the various production segments and accordingly has contributed to higher production costs. Developing management systems enabling a producer to maintain control or possession throughout the production phases should not only contribute to lowered production costs, but should also create a more harmonious environment among livestock producers. The combination of more than one production phase in swine enterprises may also indicate more efficient use of facilities, equipment and labor and thus aid in reducing production costs. Furthermore, the latter may aid in improving cash flow of certain swine operations. The diversity of the industry makes it necessary to develop an effective systems-analysis approach to economically evaluate integrated production systems. Trade-offs between labor needs, capital requests and production efficiencies are needed.

2. Research Objectives
   a. Evaluate and develop systems of various types of swine enterprises
   b. Evaluate production costs, investment levels and returns from selected integrated swine production systems; determine which systems offer the most promise for improved, efficient swine production
   c. Determine management characteristics necessary for effective implementation of selected swine production systems

- d. Determine labor, capital, and product efficiency trade-offs in selected swine production systems

E. Computer Management Systems and Marketing Strategies to Aid in the Decision-Making Process

1. Justification

The purpose of basic and applied research in animal agriculture is the improvement of animal production. A critical step is the dissemination of new knowledge in a form which producers can use to make decisions. The difficulties of planning for the future and then keeping records to monitor those decisions make computer-based management systems an ideal vehicle for distributing research results to producers. Ideally, swine producers would deal with choosing feedstuff combinations, selection and culling, marketing, and investing in facilities without the need to understand and perform tedious calculations. Long-term plans could be formulated and revised on a daily, weekly, or monthly basis as new information becomes available. Typically, however, producers often make decisions based upon incomplete information, and if records are kept, they are analyzed only "after the fact." Therefore, the development of computer management systems is necessary to integrate much of the knowledge gained through research into the farmer's decision-making process. A computer management package will allow for very efficient analysis of different production systems on an "a prior" basis. An effective management package would allow for determination of efficient production combinations. This too can incorporate availability of finance, labor and other relevant production resources.

2. Research Objectives
   - a. Develop bases for the selection of feedstuff combinations to meet the nutrient requirements of animals; develop enhancements for ration analysis and production monitoring programs to project rate and cost of gain to aid ongoing production and marketing decisions; develop a model of the animal's response to nutrients as well as to levels of available nutrients supplied by each feedstuff for use in making the above decisions
   - b. Develop record-keeping systems and interpretations necessary for production and marketing models
   - c. Develop simulation programs to evaluate alternate swine production strategies; determine any relationships between size of production unit and production costs; determine effective combinations of production strategies.

Behavior, Facility Design and Management - Staffing

Proposed Staffing

	Collaborating Institution		ARS	
Program Area	Research Scientists	Support Personnel	Research Scientists	Suppor. Personnel
Environmental Effects-Behavior	1	2	2	9
Environmental Effects-Production	1	2	1	2
Integrated Livestock Production	1	2	1	2
Computer Systems-Marketing	1	2	1	2

2. Waste Management Systems

A. Waste Management and Utilization in a Sustainable Agriculture

1. Justification

Animal wastes represent a major resource for sustainable agriculture and can enhance resource conservation in areas dedicated to livestock production. Proper management of such materials to recover nutrients and minimize environmental impacts represents a high priority component of research programs to define improved systems for livestock and crop production. Factors such as water and air quality, odor control, waste handling, storage and incorporation into soil, maintenance of balanced soil fertility and cropping systems are examples of research areas of importance. Innovative, low-cost and effective waste management systems are essential for pork producers to be more competitive and to ensure proper use and conservation of resources in regions heavily dependant on production of feedstuffs.

2. Research Objectives
   - a. Define and develop efficient and economically feasible waste management technologies for various swine production systems
   - b. Develop improved and environmentally-sound methods for storage, distribution and application of waste materials in crop production

c. Develop testing procedures and computer models to assist in management decisions relative to waste utilization to ensure protection of the environment and provide sustainability of soil productivity

Waste Management and Utilization Systems - Staffing

	Proposed Staffing			
	Collaborating Institution		ARS	
Program Area	Research Scientists	Support Personnel	Research Scientists	Support Personnel
Waste Management Systems in Sustainable Agriculture	3	5	2	5

3. Product Composition and Desirability

The primary mission of swine production is to produce high-quality protein for human consumption. Pork is essentially devoid of carbohydrate. It does contain fat, some of which is desirable for palatability, another portion that may not be desirable because of health considerations and another portion that is waste because it is removed in processing. Presently, the basic factors that limit the rate and extent of net protein synthesis have not been defined adequately. Also, the factors that regulate net fat deposition are not understood adequately.

Research should be conducted to better understand environmental factors including disease and immunity, housing, equipment, feeding and management systems and thermal environment. The basic factors and their interaction in controlling composition are not well understood. If the controlling factors and their interrelationships were known, then systems designed to alter growth rate and body composition could be better defined for decision-making models.

A. Develop an Understanding of Muscle Growth and Body Composition and Methods to Improve Each

1. Justification

   The basic metabolic factors that control net protein and fat deposition must be understood. Then strategies to maximize protein and minimize fat deposition should be developed. If this can be done, the efficiency of feed protein utilization and overall feed efficiency will be improved and more desirable pork products will be produced.

2. Research Objectives
   a. Define the metabolic factors regulating growth
   b. Determine the role of the endocrine system in the metabolism and use of nutrients for muscle and fat deposition
   c. Develop systems that result in improved rate and efficiency of protein and energy utilization

B. Develop an Understanding of Environmental Factors Affecting Growth and Composition

1. Justification

   Rapid advances are being made in knowledge of varied factors involved in the growth process. It is important to know how the immune system and the reproductive processes affect growth. Many environmental influences affect these systems and therefore influence growth.

2. Research Objectives
   a. Determine the influences of environmental factors on the immune system and their relationship to growth
   b. Determine optimum environmental control strategies to maximize breeding, pregnancy and lactation efficiency in gilts and sows over multiple reproduction cycles and their influences on growth

Product Composition and Desirability - Staffing

	Proposed Staffing			
	Collaborating Institution		ARS	
Program Area	Research Scientists	Support Personnel	Research Scientists	Support Personnel
Muscle Growth & Body Composition	2	10	1	3
Environmental Factors Affecting Growth	2	7	1	3

4. Product Utilization and Marketing

Research involving pork products ranges from investigating the fundamental properties of the raw tissue to production and processing practices that have a profound effect on product quality, safety, and utilization. Chemical, physical and functional characteristics of muscle tissue and by-products comprise a critical area of research if the pork industry is to expand its market with new, novel, high quality manufactured foods and industrial products. Fundamental knowledge about product characteristics will be needed for the successful development of human foods which combine various pork products, or in which pork products comprise part of the total ingredients. Knowledge of the edible and inedible by-products is needed for greater utilization and improved value of these materials. New methods of processing and preservation are needed to increase the variety of consumer products available and to assure the safety, quality, and nutritional value of these products.

A. Fundamental Characteristics of Porcine Proteins and Components

1. Justification

Improvement in the quality and use of pork products will require a continued commitment to basic research on characterization of the physical and chemical properties of the various components of pork and pork by-products. Because protein is the most important component of food products, major emphasis should be placed on the characterization of animal proteins, including protein components of porcine muscle. Emphasis should be placed on the characterization of the various enzymes such as proteases, that affect the characteristics of pork products. In addition to benefits for improvement of the quality and use of pork products, this research area has the potential to provide information necessary to support and direct research leading to the improvement of pork products through breeding and genetic engineering.

2. Research Objectives
   - a. To obtain knowledge of the chemical and physical properties of porcine muscle proteins
   - b. To seek fundamental information on endogenous and exogenous catabolic enzymes that affect, and can be used to alter, the quality of pork products

B. Relationship of Fundamental Characteristics of Porcine Animal Products to the Technological Properties of Foods

1. Justification

A significant need exists for utilization of current and future fundamental information for predicting the outcome of new product combinations or of processing innovations. The results of this effort would be especially valuable in the improvement of pork products by making the transfer of fundamental information much faster and more complete.

2. Research Objectives
   - a. To develop criteria based on fundamental knowledge of components of pork products, especially proteins, that can be used to predict how the pork products may be modified during processing
   - b. To be able to predict the outcome of combinations of various pork components and the effect of different processing techniques on food products
   - c. To utilize fundamental knowledge of pork product characteristics to improve or develop processing technology

C. Alteration in Muscle or Animals that Affect Fresh Pork Characteristics, Including Any That Result From Advances in Biotechnology

1. Justification

Changes in the swine population resulting from advances in genetics, breeding, nutrition, and management practices make it essential that we understand their combined effects on the raw product. An example is the current, rapid development of growth promoting compounds such as somatotropin. It is important to be aware of potential changes in muscle characteristics which could require modified processing or storage technology.

Finally, biotechnology may make entirely new kinds of products available or may improve the utility of traditional products. Development of animals of uniform carcass size and composition, for example, would offer numerous innovative changes in the slaughter and processing industries.

2. Research Objectives
   a. To understand factors, both antemortem and postmortem, that determine and influence pork quality
   b. To provide objective measures needed to predict and monitor pork quality, to be able to modify and control quality via immediate antemortem handling and during postmortem treatment, and to improve uniformity of quality
   c. To utilize advances in biotechnology where appropriate to develop new technology or new products from swine for human use

D. Sensory and Nutritional Enhancement of Pork Products

1. Justification

The increasing awareness and interest of consumers in nutritional characteristics and value of foods has had a major impact on red meat consumption and on the pork industry. Developing nutritional information in conjunction with new processing technology for new products is a very important part of efforts for improved product utilization. Further, new technology may make available means to enhance and improve nutritional value of by-products and other low-value products from the swine industry.

2. Research Objectives
   a. To identify and characterize flavor components of various pork products
   b. To increase consumer acceptance of pork products by improving the flavor properties of fresh, processed, and frozen pork products
   c. To improve the flavor uniformity and flavor development in fermented products such as snack sticks and sausages, including fermentation processes developed via biotechnology
   d. To develop nutritional information and, if necessary, nutritional enhancement of new pork products, particularly novel products developed from any new sources of raw materials

E. Safety and Preservation of Pork Products

1. Justification

There is an increasing demand for elimination of contaminants causing food-born illness and for shelf-stable products that have received only a single energy input. Irradiation is now a legitimate alternative for pasteurizing and extending preservation, but it needs re-examination at low and medium dosages. Chemical additives for foods must be considered from aspects of consumer skepticism and resistance, and for re-evaluation in terms of determining efficacy at minimum levels. Experimentation is needed on combinations of chemical additives with other preservation techniques (e.g., modified atmosphere packaging or irradiation) for the purpose of further reducing levels of chemical additives. In addition to developing physical and chemical methods that yield a pork product that is safe and has an extended quality life, laboratories must be able to rapidly and accurately detect the presence of contaminants in pork products. Such contaminants as bacteria (salmonellas), chemicals (sulfa residues), toxins (aflatoxins) and viruses must be detected rapidly.

2. Research Objectives
   a. To avoid or minimize contamination of pork during slaughter or fabrication of the carcass
   b. To improve packaging for product protection and maintenance of quality and safety
   c. To evaluate new and improved methods of processing such as hot processing, restructuring and recombining pork items with regard to their effects on preservation and safety
   d. To study the effects of reduction of various chemical additives, such as has been done with nitrites in cured meats, on preservation and quality of pork products, including combinations of additives at reduced levels with other preservation techniques (e.g., irradiation, modified atmosphere packaging)
   e. To develop preservation technology necessary to become serious international competitors in the marketing of fresh and processed pork products
   f. To develop rapid, accurate and affordable techniques to detect drug residues, parasites, pathogenic bacteria, toxic chemicals and disease lesions and agents

F. New or Improved Uses for Pork Products

1. Justification

Products are needed that take better advantage of all animal materials by reassembly of components into new and novel products for either human or animal consumption, or industrial uses. This approach has been used successfully by plant materials processors. New processing technology, in conjunction with new products, may be required for the most effective utilization of pork products and materials. Furthermore, less than half of the weight of meat animals become meat products. More than 50 percent of a hog is by-products, namely hair, head, feet, bone, internal organs, fat and blood.

2. Research Objectives
   a. To utilize advances in biotechnology where appropriate to develop new products from swine for human use with emphasis on competitive convenience foods

b. To develop products that can take full advantage of new processing and preservation technologies, including development of both edible and inedible products that meet the specific demands of international markets
c. To develop new processes whereby edible by-products such as blood, skin, fat and internal organs can be incorporated into consumable food products, and to develop new products and expand utilization of non-edible by-products such as hair and skin
d. To develop industrial and pharmaceutical products from skin, hair and other inedibles such as glands and digestive tracts

G. Development of an Information Base of Domestic and International Markets

1. Justification

Since pork must be effectively marketed outside the state and nation, knowledge of potential markets must be developed and made useable and available to the meat industry. The market information must be developed on a country specific basis due to the significant differences in market characteristics, distribution methods, public policies, and consumer demands that exist between countries. This market information must draw on the expertise of several different disciplines to gain a broad yet precise understanding of those potential markets. With an understanding of the potential markets, new products and processes can be developed to more completely exploit the market potential for U.S. pork.

2. Research Objectives
a. To analyze the political environment, economic structure and policy environment, cultural conditions, meat processing capabilities, distribution system, and marketing practices of selected countries and determine their level of potential for domestic and export markets
b. To develop an econometric model of the livestock and meat industry, conduct a consumer survey to assess demand and preferences, and profile the characteristics of successful products in the markets identified to have a high potential for domestic and export markets
c. To develop pork products designed specifically for the high export potential markets to gain a larger market share with U.S. pork

Product Utilization and Marketing - Staffing

	Proposed Staffing			
	Collaborating Institution		AES	
Program Area	Research Scientists	Support Personnel	Research Scientists	Support Personnel
Porcine Proteins & Components	1	6	1	2
Porcine Products Related to Food	1	6	1	2
Factors Affecting Fresh Pork	1	6	-	-
Enhancement of Pork Products	1	6	-	-
Food Safety	1	5	2	3
New Pork Products	2	8	1	2
Market Development	1	4	1	1

5. Genetic Enhancement for Competitiveness and Product Desirability

Traits of economic importance in the production of swine and their resulting products can be improved through genetic evaluation, selection and mating systems or genetic engineering techniques. Impacts of this research will improve the utilization of resources in swine production and improve products resulting from the pork industry. Efforts will include the use of fundamental and applied approaches to improve methods of selection, the development of breeding plans, the evaluation of germplasm, and the development and use of biotechnology and genetic engineering approaches for genetic improvement. Areas to be emphasized will recognize complementary contributions by other research groups.

A. Genetics of Cellular Biology Related to Development, Reproduction, Health and Other Systems Related to Pig Performance and Product Desirability

1. Justification

Selection for quantitative traits that are directly salable has been effective. Relatively little, however, is known about genetic differences in health-related traits that keep pigs disease-free and economically fit for continued production. Also, little is known about energy utilization at the cellular level. To improve our ability to achieve gains by genetic selection, a more detailed understanding of the genetics of the basic biology of development, reproduction and health is needed. Additionally, new techniques in biotechnological manipulation of genetic material must be explored, as genetic engineering may lead to more rapid improvement than is possible through conventional selection techniques. Application of knowledge gained through all of the genetic research will lead to development of superior stocks for efficient and economical production of pork products.

2. Research Objectives
   a. Determine the genetic control of immune response and disease resistance in swine with special emphasis on the major histocompatibility gene complex (MHC); determine genetic differences in health-related production traits in swine
   b. Characterize the genetic difference in physiological traits in swine; elucidate the role of the cell and its mitochondria in the control of growth, sow productivity and feed utilization in increasing energy utilization at the cellular level
   c. Examine methods of biotechnological manipulation of genetic material for potential utilization in genetic improvement systems

B. Differential Response of Genetic Stocks to Important Environmental Influences

1. Justification

Genetic changes in modern swine have often been made without considering the future environments in which the animals will live, produce offspring, and perform. Environmental conditions such as differences in nutrition, housing, climate and disease prevalence may limit genetic improvement. Understanding how different genetic stocks perform in the unique and changing environments is crucial for further genetic improvement in efficiency of production.

2. Research Objectives
   a. Evaluate breeds and lines of swine for differences in response to vaccination and disease challenge, and develop disease control alternatives to drug therapy and vaccination
   b. Compare lines of swine selected for differences in non-traditional traits, including conformation and structural soundness, to ascertain their modes of inheritance and develop procedures for selecting breeding stock free of these disorders

C. Selection Criteria and Associated Physiological Changes

1. Justification

The effectiveness of genetic improvement is dependent upon how selection is practiced. Additional knowledge and its application is necessary to optimize selection criteria. Efficient selection is needed to continue developing superior pigs for economical production of high quality animal products. Examples include rate of lean deposition, and reproductive performance in swine. Genetic gains are gradual, but permanent. Increased knowledge of parameters for traits under selection is critical for improving selection. Proper choices of scale of measurement and more descriptive models will enhance genetic improvement.

Producers make decisions on a day-to-day and long-term basis. A systems approach is needed to aid producers in decision-making concerning selection of breeding stock as it pertains to marketing, housing and management.

2. Research Objectives
   a. Develop, evaluate and monitor selection procedures in swine for feed efficiency, reproductive performance, sow productivity and rate of lean deposition; revise indexes to ensure that breeders can continue to improve traits of economic value
   b. Determine to what extent genetic differences in growth, production, and reproductive traits in swine have resulted in improved efficiency after accounting for feed intake; determine on which scale of measurement these traits best reflect components of gene action that will allow more effective selection
   c. Develop a systems approach to making management decisions on a day-to-day and a long-term basis to aid producers in making more accurate genetic decisions as they relate to marketing, housing and management

D. Inter- and Intra-population Performance of Domestic and Exotic Strains

1. Justification

A sound breeding program must capitalize on the genetic differences that exist within and between lines and breeds. Efficient commercial production depends on the development of superior parent strains and crossing of those strains to produce a final market product that will manifest high vitality, rapid growth, efficient feed conversion and a high quality final product. Achievement of this goal requires a detailed understanding of the expression of genetic differences. Capitalizing on existing genetic variation in breeds distributed over the world is more efficient than producing these differences by selection with present domestic stocks. Problems can be anticipated, however, in adapting foreign breeds of pigs into domestic production. Ideally, both domestic and exotic breeds should be tested in crosses for their suitability to the intense systems of animal production becoming common in the United States. Alternatively, individual genes will be identified for eventual transfer into U.S. swine breeds.

2. Research Objectives
   a. Evaluate alternative breeding programs for producing replacement females in swine herds
   b. Evaluate Chinese and other exotic breeds of swine and their crosses with domestic breeds for reproductive efficiency, utilization of high fiber feeds and health
   c. Characterize genes for disease resistance and reproduction efficiency in Chinese pigs and eventually transfer them to U.S. breeds of swine

E. Development of Evaluation Systems and Statistical and Computational Methodology

1. Justification

Breeding experiments at the swine breeding research farm combined with large centralized data bases available through breed associations and central test stations form the base of information to be utilized in many phases of research leading to genetic improvement. It will be necessary to develop a network of farm based microcomputers linked to a minicomputer in the Center which can be interfaced with the university central processing systems to integrate the ongoing research functions with the data bases available.

2. Research Objectives
   a. Develop a prototype network of mainframe and microcomputers linking farm-based and centralized data bases
   b. Design and evaluate within-herd models which broaden the scope of information used, open new segments of the breeding population for utilization in breeding programs, and facilitate the integration with and development of national sire evaluations across herds

Genetic Enhancement for Competitiveness and Product Desirability - Staffing

	Proposed Staffing			
	Collaborating Institution		ARS	
Program Area	Research Scientists	Support Personnel	Research Scientists	Support Personnel
Cellular Biology	1	4	2	6
Genotype-Environmental Interaction	1	4	1	2
Selection Criteria	1	4	-	-
Performance- Domestic & Exotic Strains	-	1	-	-
Evaluation Systems	1	4	-	-

6. Reproductive Performance

Productivity depends on reproductive efficiency and is often measured by the number of offspring per breeding female per unit of time. Reproductive potential is the most important factor contributing to total meat production from farm animal species. Low reproductive performance in farm animals results in increased food costs. Efficiency of reproduction may be decreased by problems relating to ovulation, heat detection, insemination, fertilization, as well as prenatal and postnatal death. Swine produce multiple offspring, but only 50 percent of the reproductive potential of this species is achieved because of embryonic death, neonatal mortality, failure to attain puberty, and poor breeding performance. The economic loss to the producer and the resulting increased costs to the consumer from inefficient reproductive performance make the need for new knowledge in this area of highest priority.

A. Embryo and Fetal Survival

1. Justification

It is known that about 30-40 percent of pig embryos die during the first 25 days of pregnancy. If we are to obtain an "optimal" litter size in sows, and maximize farrowing rates, we will need a better understanding of factors that influence embryo survival. In addition, this early period of high embryo mortality is a physiological constraint relative to continued development of genetically superior embryos placed in uteri of recipient females during embryo transfer procedures. Factors that influence embryonic loss may be related to genetics, nutrition, maternal age, environment, semen quality, time of insemination, hormonal imbalance, disease and biochemical changes within the uterus. A better understanding of how these factors affect embryo and fetal survival will increase animal productivity and lead to direct economic benefit to the pork producer.

2. Research Objectives
   a. Determine factors which influence early embryo development and survival and maternal recognition of pregnancy
   b. Characterize the mechanisms which facilitate nutrient and oxygen uptake by the fetus throughout pregnancy

B. Neuroendocrine Regulation of Estrous Cyclicity in Prepubertal and Postpubertal Animals

1. Justification

Additional information is needed to elucidate neuroendocrine mechanisms regulating sexual maturation, estrous cyclicity and pregnancy. A better understanding of the hypothalamo-hypophyseal-gonadal system will lead to applicable methods for practical improvement of reproductive efficiency in swine. Understanding factors which initiate sexual maturity and control fertility are vital if we are to reduce the time from birth to ovulation, improve conception rates and lead to increased lifetime productivity. Post-weaning anestrous in cows is a serious economic restraint to productivity which must be eliminated.

2. Research Objectives
   a. Elucidate neuroendocrine regulation of hormone secretion and hormone-receptor interactions in reproductive tissues
   b. Determine the effects of the environment, nutrient uptake and breed differences on hormone secretion, ovarian function and estrous cycles
   c. Determine factors controlling ovulation rate and follicular selection

C. Parturition and Neonatal Survival

1. Justification

A basic understanding of the nutritional and hormonal requirements for normal development of the fetus and placenta is essential if we are to reduce stillbirths and neonatal losses in domestic animal species. Birth, which is the transfer from a liquid to a gaseous environment, confronts the mammalian organism with substantial challenges. While in utero the placenta, perfused with fetal blood, removes from the maternal circulation the gases, minerals and nutrients necessary for growth. This supply is severed at birth and to survive, the newborn must successfully obtain these substances by entirely new methods. A greater understanding of how and when fetuses or neonates achieve this competence would enable us to assist and to exert control over this critical part of the reproductive process. The ability to control maturation of the fetus becomes of critical importance when we consider that the early timed induction of parturition provides a powerful management tool in efficient livestock production.

2. Research Objectives
   a. Investigate factors which affect neonatal survival during and following normal and induced parturition
   b. Define necessary maternal-neonatal interactions during the periparturient period
   c. Characterize events leading to fetal maturation and parturition

D. Micro-Biomanipulation

1. Justification

If we are to maximize genetic improvement in livestock production, techniques for cloning recombinant DNA and gene-splicing must be adapted to food producing animals. Micromanipulation experiments on mammalian embryos have shown that splitting embryos in halves and quarters does not prevent the individual fractions from developing into normal, complete individuals.

The introduction of foreign genes into mammalian embryos could form the basis of a powerful approach for studying gene regulation and the genetic basis of development. Recent studies have clearly established the feasibility of introducing foreign DNA into the mammalian genome by microinjection of DNA of interest into pronuclei of fertilized eggs. These foreign genes would then be incorporated and passed on to future generations when gametes from these individuals are utilized.

2. Research Objectives
   a. Investigate methods to identify, isolate, purify and multiply selected single genes involved in growth, disease resistance and reproductive efficiency
   b. Develop techniques for improved introduction of these genes into the genome of swine
   c. Develop breeding systems which incorporate transgenic animals

Reproductive Performance - Proposed Staffing

	Proposed Staffing			
	Collaborating Institution		ARS	
Program Area	Research Scientists	Support Personnel	Research Scientists	Support Personnel
Embryo Survival	1	3	-	-
Neuroendocrine Regulation	1	3	1	2
Neonatal Survival	1	3	-	-
Micro-Biomanipulation	1	3	1	4

Total Personnel and Annual Budget
Proposal for National Swine-Pork Research Center

	ARS Personnel		ARS Annual Budget (Millions)				
Research Activities	Research Scientist Positions	Support Personnel*	Research Scientist Personnel	Animal Unit Support Personnel	Administrative	Tech. Transfer	Support Equipment Maintenance
Behavior, Facility Design and Management	5	15	$1.20	$.062	$.025	$.050	$.150
Waste Management Systems	2	5	.585	.063	.025	.050	.150
Product Composition and Desirability	2	6	.585		.025	.030	.050
Product Utilization and Marketing	6	10	1.75		.025	.050	.050
Genetic Enhancement for Competitiveness and Product Desirability	3	8	.83	.031	.025	.050	.050
Reproductive Performance	2	8	.55		.025	.035	.050
	20	50	$5.50	$.156	$.150	$.265	$.500

Collaborating Institution

Research Activities	Research Scientist Positions	Support Personnel*	Annual Budget (Millions)
Behavior, Facility Design and Management	5	8	$1.50
Waste Management Systems	3	5	1.50
Product Composition and Desirability	4	17	1.20
Product Utilization and Marketing	8	42	2.00
Genetic Enhancement for Competitiveness and Product Desirability	4	17	1.20
Reproductive Performance	4	12	.80
	28	101	$8.20

*Includes all support staffing for laboratories

Budget for National Swine Research Center - Construction Costs and Supporting Animal Facilities

Square Footage Needs Analysis

	Net Sq. Ft.	Net to Gross	Gross	Cost Per Sq. Ft.	Est. Cost (Millions)
20 Laboratories (1,200 sq. ft. each)	24,000	.6	40,000	200	$8.00
45 Offices (150 sq. ft. each)	6,750	.6	11,250	200	2.25
1 Computer Room (400 sq. ft.)	400	.6	667	200	.13
1 Technology Transfer Unit and Support Facilities	3,750	.75	5,000	200	1.00
Storage (3,000 sq. ft.)	3,000	.75	4,000	125	.50
Design and Construction Services					2.02
Scientific Equipment Building					2.00
Total	37,900		60,917		$15.9 million

Animal Facilities

1- 200-sow herd facility for Behavior and Waste Management	4.00
1- 300-sow herd facility for Breeding and Genetics and Facility Design	6.00
Total Construction Cost	$25.9 million

ARS Annual Budget

20 Research Scientists (includes salary and support*) ($275,000 each)	$5,500,000
Research Herd Costs	200,000
1 Tech. Transfer Specialist (includes salaries and support**)	265,000
5 Animal Caretakers	156,250
Administrative support***	150,000
Supporting Equipment, Maintenance and Replacement	300,000
ARS Total	$6,571,000

Collaborating Institution

28 Research Scientists (includes salary and support*) ($275,000)	$7,700,000
Computer Programming	125,000
Support Equipment, Maintenance and Replacement	375,000
Collaborating Institution Total	$8,200,000

* Support includes: technical employees, graduate assistants, laboratory equipment and operating expenses

** Support includes salaries for specialist, two assistants, and $150,000 in operating expenses

*** Administrative support includes: administrative assistant, account clerk, clerical and office expenses

Executive Summary

Proposal for the development of a

National Swine-Pork Research Center

The Issue

The pork industry is a major value-added economic sector. In 1989, for example, this industry generated $9.5 billion in cash farm sales. This represents $20 billion in economic activity annually when the output multiplier effect is considered. Pork production and processing is vitally important to the economic well-being of rural communities throughout the Midwest and in concentrated areas in other regions of the U.S. For example, a typical rural trade area in the corn belt currently markets 400 hogs per square mile. This generated on the average in the 1980s $4.3 million in cash sales and almost $9 million in economic activity for an individual community of 100 square miles.

Much of the nation's farming is based heavily on grain and oilseed crops. A high percentage of these commodities must be utilized in the production of meat and milk. Pork production in a good year can actually triple the value of corn produced. This greatly enhances income potential for family farms and provides an essential base for nutrient recycling which is an important component of a truly sustainable agriculture dedicated to conserving the natural resource base of grain producing regions.

The proposed center described in this document including a new USDA-ARS research unit and an appropriate collaborating research university creates an ideal environment for achieving the vision for the best research unit of its type in the world. Research will concentrate on animal behavior and management, environmental concerns, and genetic enhancement for product desirability. In addition, a major component of research for the proposed center is dedicated to pork quality, safety and international trade. It will also contribute to economic development in rural areas by expanding the use of locally-produced grains and oilseeds in the production and processing of high-value meat products.

The elements of this plan were developed by those in many scientific disciplines along with pork industry leadership and representatives of the business community.

Objectives

The overall goal of the center will be to accomplish high priority research which will contribute to improved production, utilization and marketing of pork and pork products characterized by the highest standards of nutrition, safety and desirability. The center will serve as a research site for six broad areas: behavior, facility design and management; waste management systems; product composition and desirability; product utilization and marketing; genetic enhancement for competitiveness and product desirability; and reproductive performance. To meet this general objective, a joint team of basic and applied animal scientists, economists and agriculture engineers will study a variety of research areas devoted to improved, more efficient and humane swine production and utilization of pork.

Research Programs to Accomplish Objectives

1. Behavior, Facility Design and Management
    - A. Effect of Environment on Animal Behavior and Performance
    - B. Environmental Effects of Swine Production
    - C. Evaluation of Facility Design and Management Systems in Swine Production
    - D. Integrated Livestock Production
    - E. Computer Management Systems and Marketing Strategies to Aid in the Decision Making Process
2. Waste Management Systems
    - A. Waste Management and Utilization in a Sustainable Agriculture
3. Product Composition and Desirability
    - A. Develop an Understanding of Muscle Growth and Body Composition and Methods to Improve Each
    - B. Develop an Understanding of Environmental Factors Affecting Growth and Composition
4. Product Utilization and Marketing
    - A. Fundamental Characteristics of Porcine Proteins and Components
    - B. Relationship of Fundamental Characteristics of Porcine Animal Products to the Technological Properties of Foods
    - C. Alteration in Muscle or Animals that Affect Fresh Pork Characteristics, Including Any That Result From Advances in Biotechnology
    - D. Sensory and Nutritional Enhancement of Pork Products
    - E. Safety and Preservation of Pork Products
    - F. New or Improved Uses for Pork Products
    - G. Development of an Information Base of Domestic and International Markets
5. Genetic Enhancement for Competitiveness and Product Desirability
    - A. Genetics of Cellular Biology Related to Development, Reproduction, Health and Other Systems Related to Pig Performance and Product Desirability
    - B. Differential Response of Genetic Stocks to Important Environmental Influences
    - C. Selection Criteria and Associated Physiological Changes
    - D. Inter- and Intra-population Performance of Domestic and Exotic Strains
    - E. Development of Evaluation Systems and Statistical and Computational Methodology
6. Reproductive Performance
    - A. Embryo and Fetal Survival
    - B. Neuroendocrine Regulation of Estrous Cyclicity in Prepubertal and Postpubertal Animals
    - C. Parturition and Neonatal Survival
    - D. Micro-Biomanipulation

PROPOSED BUDGET
SUMMARY BY ACTIVITY

Annual Budget	ARS-USDA	Collaboratory Justification
Personnel	$4,000,000	$7,700,000
Operating	$2,571,000	$500,000
Total Annual	$6,571,000	$8,200,000
Capital Facilities & Equipment	$25,900,000	

EASTERN SOUTH DAKOTA SOIL AND WATER RESEARCH FARM, INC.

STATEMENT OF RICHARD FOSSUM AND EUGENE BOER

Thank you for the privilege and opportunity to once again appear before this subcommittee. We represent the Eastern South Dakota Soil and Water Research Farm, Inc. of Brookings, South Dakota. As active farmers and members of the Board of Directors of this corporation, we are committed to promote and sponsor agricultural research. We are particularly interested in the development of more efficient farm production practices that will conserve and protect our valuable resources of land and water. Our Directors represent over one-third of the farming community of South Dakota; we are elected representatives of 15 Soil and Water Conservation Districts.

Since 1959, our membership has aggressively assisted and promoted research programs of the USDA Agricultural Research Service (ARS), especially those at the Northern Grain Insects Research Laboratory at Brookings, South Dakota, and the North Central Soil Conservation Research Laboratory at Morris, Minnesota. We are also committed to support programs of the Agricultural Experiment Station at South Dakota State University (SDSU) at Brookings, South Dakota. To assist these important research organizations, our membership committed nearly all its resources (over 40,000) to purchase and help develop a research farm located approximately one mile from South Dakota State University and the Northern Grain Insects Research Laboratory. This farm supports research for ARS and SDSU and serves as a unique center in the Northern Great Plains for multidisciplinary agricultural research. The combined strength of the two ARS facilities and SDSU provides a critical mass of scientists and technicians (entomologists, soil and water scientists, agronomists, plant physiologists, agricultural engineers, economists, and extension agents) to develop practical solutions for our farming problems.

South Dakota farmers are faced with many challenging problems but two that deeply concern our members are the erosion of our soils and the contamination of our water with chemical pesticides and fertilizers. These problems threaten the long-term productivity of our farms and the health of our families and communities. We are encouraged by the progress made by ARS and the land grant universities but we must do more to resolve these problems. For example, at the Northern Grain Insects Research Laboratory, development of new control strategies for corn rootworms and cereal aphids will significantly reduce insecticide use for two major U.S. field crops. The North Central Soil and Water Conservation Research Laboratory and South Dakota State University are also making significant contributions toward protecting the quality of our water and the fertility of our soils. However, additional funds are needed to support these critical research programs.

The membership of the Eastern South Dakota Soil and Water Research Farm, Inc., requests additional funding of $500,000 for the Agricultural Research Service laboratories at Brookings, South Dakota, and Morris, Minnesota, to support a new research initiative at our farm. This initiative will develop new crop production systems that are economically sustainable for the Northern Great Plains and protective of our precious soil and water resources. We also request a one-time grant of $100,000 to purchase additional land for our farm; current research needs far exceed the space available for critical research projects.

We urge you to seriously consider our requests. With your help and that of our ARS and university cooperators, we can dramatically improve the profitability and safety of agriculture on the Northern Great Plains.

STATEMENT OF THE FDA COUNCIL

Mr. Chairman, Members of the Subcommittee, thank you for the opportunity to present a statement on behalf of the FDA Council, in support of funding for the resource needs of the Food and Drug Administration (FDA).

The FDA Council was formed two years ago and is a broad based coalition with representatives from health voluntary organizations, professional societies, researchers, biotech and pharmaceutical companies, who have come together to advocate for the resource needs of the FDA. This is a diverse group of organizations who are not always advocates on the same side of issues; however, when it comes to FDA resources, they speak with unison.

Summary of Request

The FDA Council recommends that Congress address a serious funding shortfall in the President's Budget Request and, specifically requests that the FDA receive **a full, directed appropriation of $820 million, a $50 million increase above the 1992 level recommended by the President.** We urge your consideration of the following distribution of those funds.

* **$10 million** for buildings and facilities in an initial step to establish a consolidated, centralized FDA facility and implement the intent of the FDA Re-vitalization Act. Funds are needed for site evaluation and selection; appraisal and zoning evaluation; environmental impact statement; Title search; and the initiation of architectural and engineering design.
* **$40 million** to provide for the resource needs of the FDA--**personnel, training and equipment and instrumentation**--to carry out the mandate of 12 news law enacted in 1990 which expanded the mandates and responsibilities of the FDA. It is important to point out that these funds would not restore programs which had been cut in the past. They are simply a requirement to enable the agency to meet the new Congressionally mandated responsibilities.

Background

Over the past two years, Congress has been an ardent supporter of the FDA, directing many resources to assist the FDA to strengthen and maintain its vital programs. The FDA Council recognizes this effort and thanks you for your diligence with regard to the crucial needs of this agency. Unfortunately, more needs to be done, for without the necessary resources the FDA cannot continue to safeguard the health and welfare of Americans. The FDA Council speaks with unison in urging this Subcommittee to make the resource needs of the FDA a top priority.

The American public expects much from the FDA. The future health and well being of all Americans depends upon the ability of the FDA to keep pace with the accelerating growth of our health care industry, both in size and technology; to continue to bring the fruits of our research to the consumer in a timely and efficient manner; and, to protect the health of every American. However, many impediments exist in meeting these expectations.

FDA's plate is overflowing and its resources have not kept pace with its responsibilities. The FDA is the pre-eminent regulatory agency in the world. Clearly, the agency has been pressed to the wall to meet its present responsibilities. Had it not been for the commitment and integrity of the individuals who work in the FDA, much of what the agency has been able to accomplish over the past decade would have been impossible.

The FDA regulates more than $750 billion in products (25% of all U.S. consumer dollars) at a cost of $2.62 per capita (based on the FY 1990 budget estimate). The FDA budget is 1/10 of 1% of the total retail value of the products it regulates. New product applications submitted to the Agency are expected to double in the next 15 years, from 15,000 to 30,000. Further, the FDA is less technologically sophisticated, and receives less financial support than the industries it is expected to regulate.

In the area of biotechnology, a 400% increase in the workload has been realized in the last decade. During the same period, the FDA has approved for market 11 biotechnology-based drugs and vaccines developed by a small number of companies. However, in 1990, there has been a 30% increase in the product applications submitted to drugs and biologics. Today, more than 500 biotech companies are developing products, and there are over 1,000 biotech products are in the pipeline undergoing preclinical development and clinical trials.

Only 25 percent of the total FDA budget--or 65 cents for every citizen--goes toward food protection. The FDA is responsible for covering the following territory to assure food safety for all Americans: 50,000 U.S. food processors and warehouses; imported foods--10% of U.S. consumption and growing; 450,000 commercial food service outlets; and, 10,000 new grocery products annually. In September 1990, the Center for Foods had a backlog of more than 1,000 overdue responses to correspondence for interpreting most food regulations.

Clearly, the demands on this Agency are only going to become greater as we approach the next century; they have no chance of lessening. Unless we address some of the fundamental resource needs of the FDA soon, many persons suffering from disease and disability will suffer unnecessarily. Equally alarming, if these needs are not met, many believe that the FDA will not be able to safeguard the health and welfare of Americans.

During the 101st Session of Congress, 12 new laws were enacted expanding the role and responsibility of the Food and Drug Administration. These laws include the following.

- FDA Revitalization Act
- Breast Cancer and Cervical Cancer Mortality Prevention Act
- Safe Medical Device Act of 1990
- Ryan White Emergency Relief Act
- Nutritional Labeling and Education Act of 1990
- National Nutrition Monitoring and Related Research Act of 1990
- Medicaid Drug Pricing
- Farm Bill
- Sanitary Transportation of Food Act of 1990
- National and Community Service Act of 1990
- Anabolic Steroids
- Senior Biomedical Research Service

All of the new legislative initiatives are critical to the improved health and welfare of Americans. However, in order to carry out the mandates of these legislative initiatives and not destroy the integrity of any of the existing programs within the agency, additional resources will be vital.

President's Budget Request for the FDA

The 1992 President's Budget Request for the Food and Drug Administration (FDA) is $770 million, with $197 million to be financed with user fees. Therefore, in essence, the President has proposed that the FDA be appropriated $117 million below last years funding level. Assuming collection of user fees, the President's proposal will provide $44 million in new funding.

FDA COUNCIL FY 1992 FUNDING RECOMMENDATIONS FOR THE FOOD AND DRUG ADMINISTRATION

The FDA Council recommends that the Food and Drug Administration (FDA) receive a full, directed appropriation of $820 million, a $50 million increase above the 1992 President's Budget Request. The FDA Council recommends that Congress consider the following breakdown of funding.

$10 million as an INITIAL step to establish a consolidated, centralized FDA facility and implement the intent of the FDA Re-vitalization Act. The President has provided only

$1.6 million for continued efforts to consolidate FDA's more than 23 headquarters locations into a single facility.

Two years ago, the Agriculture Appropriations Subcommittee provided initial funding to evaluate the feasibility of consolidation of FDA facilities. This past winter, their consolidation report was finalized and the FDA now has a plan to work with GSA in developing a consolidated facility to address the severe facilities deficiencies compromising the effectiveness of the FDA. Funds are now needed for site evaluation and selection; appraisal and zoning evaluation; Title evaluation; Environmental Impact Statement; initiating planning for land acquisition; and beginning architectural and engineering design. The working conditions of the FDA are ludicrous, and we would encourage the members of the Subcommittee to include in their assessment of the Agency a site visit to the Parklawn Building, as well as several laboratory sites. The GAO has estimated that current FDA space is only 75% of the recommended allocation per employee.

FDA's headquarters are located in 23 buildings in 7 geographic locations throughout the Washington, D.C. area. How adequate is this arrangement? Allow me to invoke the findings of several federal agencies who have been charged with evaluating this very question.

- In 1976, an FDA study on the adequacy of its headquarters research facilities found that many were severely deficient. It found that 4 of the agency's nine laboratories were "unacceptable," three were "marginal," and the other two were suitable with some "marginal" characteristics. Many of the problems within these laboratories related to structural flaws, such as inadequate air handling and ventilation, air contamination and plumbing deficiencies.
- In 1980, laboratories at the Center for Foods failed a FDA "good laboratory practices" inspection. Two of these laboratories were closed; the others remain open.
- In 1988, a GSA study estimated that "$84 million would be needed to properly renovate the center's main laboratory facility."
- A 1989 FDA study concluded that the fragmentation of the FDA's facilities has hindered consultation between product reviewers and researchers. It found that as a result, "the FDA reviews of premarket applications for medical devices, drugs, biological products, and food additives took longer and were of lower quality."
- In a GAO Report on facilities in September, 1989, GSA officials allowed that "FDA laboratories continue to have serious problems with electrical, heating and cooling and waste disposal systems.

Since 1976, the track record for stating the case for a new facility of the FDA has been made clear by the FDA, the GSA and the GAO. It is critical that we now act on what we know to be a blatant need. We must no longer allow the FDA to be compromised in its effectiveness in carrying out its mandates by antiquated, overcrowded and unsafe buildings which fail inspection by government standards. We can no longer continue to ask the FDA to regulate products developed by state-of-the-art industries when their plumbing does not work. The facilities are impeding the effectiveness of the FDA, making it difficult, if not impossible, to attract and retain researchers and regulatory reviewers and holding hostage the health and welfare of our citizens because we have failed to address a situation that was blatantly evident in 1976.

$40 million to provide for the resource needs of the FDA–personnel, training and equipment and instrumentation. An increase of $80 to $150 million is needed to provide for the full implementation of the new legislation. However, the 1992 President's Budget Request only contains $44 million for additional resources to address these new responsibilities. Without the additional $50 million proposed by the FDA Council, the FDA will not be able to fully implement these legislative mandates.

The FDA is at a crucial juncture where much progress has been made to strengthen existing programs; yet, without increased resources, those programs will be compromised if the agency fully responds to the new mandates. Additional funds this fiscal year will be used to carry out the following.

- Enforcement in high priority areas, including blood products, seafood inspections, nutrition monitoring and labeling, generic drugs, and medical devices.
- Increased product evaluation in the following areas, including drugs, biologics, vaccines, medical devices, and AIDS.

User Fees

The FDA Council is opposed to the concept of users fees to obtain funding for FY 1992, as outlined in the 1992 President's Budget Request and recognizes this Subcommittee for its efforts in previous years to reject this proposal. If the Food and Drug Administration is statutorily required by the President and the Congress to protect the health and welfare of the American public, the requisite Federal funding should be made available to carry out this mandate. We believe that the implementation of such a proposal in FY 1992 could significantly compromise the FDA for the following reasons.

- The proposal is clearly a substitution for appropriations for the FDA, as the fees bear no relationship to costs.
- User Fees are not presently authorized, and could not be authorized nor implemented in a timely fashion to impact the operating budget for 1992.
- Requiring payments related to the FDA review of products is a tax on research and development.

Conclusion

The Food and Drug Administration is a unique resource and has the responsibility to protect the health and welfare of the nations citizens. It is unparalleled the world over. To that end, recent advocacy efforts; consumer demands; rapidly evolving technologies; and, a strong commitment by the Congress and the Administration to provide for the highly specialized demands of the agency have enabled the FDA to restore its credibility and effectiveness.

The personnel of the FDA are highly talented individuals who have pulled together to address the growing mandates of the agency over the past decade. Serious infrastructure problems have prevented the agency from flourishing over the past decade. Congress has come a long way in addressing many of these needs; however, much remains to be done.

Mr. Chairman, Members of the Subcommittee, we recognize that you have many competing demands and many worthy programs to address in your deliberations. The future health and well being of all Americans depends upon the ability of the FDA to have the adequate resources to carry out it's mission... and prepare for the 21st Century. We thank the Subcommittee for giving the FDA Council the opportunity to present our comments.

FEDERATION OF AMERICAN SOCIETIES OF FOOD ANIMAL SCIENCES

STATEMENT OF ROBERT G. ZIMMERMAN, EXECUTIVE VICE PRESIDENT

Mr. Chairman, we are pleased to provide a perspective on the USDA budget relative to research. The Federation of American Societies of Food Animal Sciences is composed of approximately 17,000 members involved in animal agriculture. As with other agricultural scientists, we are concerned with all aspects of research, teaching and extension relative to animal agriculture. This includes not only basic research but applied research and the application and transfer of technology through all available means so that the research benefits society as a whole.

In this regard then, we have specific interests in the Agricultural Research Service, the Cooperative State Research Service and the Cooperative Extension Service. We will comment on each of those separately as their funding impacts directly on our activities.

Total farm sales in 1989 were more than $150 billion, and livestock sales exceeded 52% of the total (ERS, 1991). Animal products account for 68% of the protein in the American food supply and are a primary source of many vitamins and minerals as well as the exclusive natural food source of some (NAS, Desigining Foods). The impact of these products on human nutrition and health is deserving of more understanding. Research on animal food sources and human nutrition are critically underfunded in USDA at the current time.

Cooperative State Research Service (CSRS):
We repeat our request of a year ago that Congress look at the CSRS research budget and try to achieve the appropriate balance of base programs, competitive research grants, and special research grants as well as facilities for upgrading the infrastructure. In particular, we recommend NRI funding at the $200 million level.

- Competitive Research Grants
  Animal Systems ($38 million)
  Nutrition, Food Quality and Health ($25 million)

  Competitive grants continue to represent the area of greatest deficiency in terms of balance of CSRS funding. We support the NASULGC recommendation for $200 million dollars in the National Research Initiative Competitive Grants Program (NRICGP) versus the President's budget proposal of $125 million. We are pleased that the Administration seems supportive of an annual increase of at least $50 million for the NRI. It is important that all 6 areas of the National Research Initiative (NRI) be appropriately funded as soon as possible. The NASULGC proposal for 1992 comes closer to achieving that general goal. The $500 million program recommended in the National Academy of Sciences publication "Investing in Research" is justified by needs and scientific abilities. We encourage attainment of that level as soon as feasible by availability of funds. For the 1992 budget, we specifically request $38 million for the Animal Systems Program to focus on particular cellular and molecular bases for development of better animal products and for animal disease mechanisms. We also request $25 million for the nutrition and food safety aspects in the Nutrition, Food Quality and Health Program.

We also believe that the 14% limit on overhead has resulted in a severe problem for USDA grants. Some institutions are requiring academic departments to make up the differences between 14% and usual overhead costs. In terms of equity with grants from NIH and NSF we ask that relief be given to the 14% overhead limit, while the more complex issue of overhead is resolved in a more equitable fashion across government agencies and recipient institutions. It would seem that a more uniform set of standards, with fewer exemptions, would be an improvement from the current status quo. At a minimum, we request a return to the 25% cap as all parties would agree that current items allocated to indirect expenses equal or exceed 25% in every location.

- Base Programs
  We support the increase in base programs recommended by NASULGC. In particular, we feel that the animal health base program (Section 1433) should become a permanent addition to base programs. This allows the animal health efforts of various state cooperators to be a part of the federal government program which has proven to be an effective method of running research programs.

  The concept of multi-disciplinary and mission oriented research under the NRI is a welcomed addition. The fact that the primary focus is on basic research, but basic research intended to improve availability of food and fiber at minimal cost to the environment is the correct message. The NRICGP has been responsive to many concerns and is a program now worthy of your support. Coordination of basic research results with application will occur without duplication through the mission oriented NRI grants and IRM process described below.

Cooperative Extension Service (CES):
Further increases in basic research to take advantage of new advances in modern biology relative to animal foods and nutrition will lead to new information. The Extension Service needs adequate support in order to aid with the technology transfer of such basic findings.

- Integrated Manangement Systems ($5 million)
  In particular, we feel that support for Integrated Management Systems is necessary to implement and prepare for the transfer of current and future information to the advantage of agricultural producers as well as consumers. An inter-disciplinary approach to site-specific Integrated Resource Management practices is a very critical part of agricultural sustainability. Past sustainable agriculture programs have not adequately incorporated animal agriculture components. We recommend $5 million dollars be appropriated for 1992 as the first step toward the $20 million authorized in the Farm bill (Sub title B, Sustainable Agriculture Research

and Education, Chapter 2 Integrated Management Systems, Section 1627). The appropriate integration of new information from basic research into systems for food producers and consumers will ensure optimal consideration of environmental impacts and consumer needs.

Agricultural Research Service (ARS): The President's budget proposes $23 million in program changes for ARS. While we are pleased with the increased resources proposed, additional resources are needed for animal well-being, genetic programs, and animal disease. For 1991, animal sciences research is less than 18% of the total, and human nutrition is less than 9% of all ARS research. The $2 million in animal sciences increases already proposed should be supplemented as follows:

o Animal Well-being and Welfare ($2,000,000) Most lacking in the President's budget, is the need for a special emphasis on animal well-being. Since animal well-being is a contentious issue often resulting in many letters to Congress, we believe that a research facility which could also serve as an educational facility for decision makers and the general public in the area of our nation's capitol is overdue and would be helpful to all concerned. We request that Congress concur with this message and request ARS to make such a proposal.

We believe that ARS needs to assemble a team of researchers on well-being and general welfare of animals immediately. A program of approximately $2 million for a Center of Research Excellence is needed and could be done in conjunction with an on-going university program and collaborating ARS scientists. We believe further that ARS should be asked to develop a longer range program emphasizing animal behavior and well-being with a significant effort in the vicinty of Washington, D.C.

o Animal Germplasm and Gene Mapping ($2,000,000) We suggest additional resources for the National Genetic Resources Program consistent with the 1990 Farm bill, (subtitle C, sections 1632-35). Of great importance to all farm animal species would be expansion of gene mapping and evaluation to take advantage of new biotechnology approaches to improve efficiency of animal production, improved nutritional quality of animal products, and disease resistance.

o Foreign and Domestic Animal Diseases ($2,000,000) Animal diseases are a constant threat to the US livestock and poultry industries. Expansion of the current program needs to become a high priority. We encourage expansion of the Foreign Animal Diseases Program to focus on emerging disease problems, such as bovine spongiform encephalopathy (BSE). In England, BSE has caused great damage to the cattle industry, with dollar losses into hundreds of millions; they have

> about $20 million annually in BSE research. Domestic animal diseases are also of concern. In particular, sheep scrapie and "mystery disease" of swine need increased attention.

We hope these judgements concerning appropriate balance of USDA research funds are useful to your committee. We are familiar with recommendations of CARAFE (Coalition for Advancement of Research and Agriculture, Food, and the Environment), NASULGC (National Association of Universities and Land Grant Colleges), and FFAA (Forum for Animal Agriculture). We are basically in support of the recommendations of those three groups, any minor variations result only from our independent review.

FINANCIAL EXECUTIVES INSTITUTE

STATEMENT OF JACK HIGGINS, CHAIRMAN, COMMITTEE ON GOVERNMENT LIAISON

BACKGROUND

Mr. Chairman, and Committee Members: My name is Jack Higgins. I greatly appreciate the opportunity to present this statement to the Subcommittee to discuss the need for support of the resources necessary to implement the Chief Financial Officers Act of 1990 ("CFO Act").

I am the Chairman of the Committee on Government Liaison of the Financial Executives Institute, a professional association of over 13,500 senior financial executives from 7,000 major companies throughout the United States and Canada.

Mr. Chairman, the CFO Act was passed by Congress as a step down the lengthy road toward federal financial management reform. The need for such reform is great. In testimony before Congress, Office of Management and Budget Director Richard Darman conceded that management problems in the federal government are enormous and that mismanagement could ultimately "affect the basis for confidence in democratic government." The budget crises facing the nation -- multibillion dollar deficits -- leaves the federal government little choice but to adopt responsible financial management policies.

Until the passage of the CFO Act, no one entity was solely vested with the responsibility for oversight of financial management practices in the federal government. Responsibility for this function was segregated among a number of Executive agencies and Congress. This resulted in fragmented oversight, at best, and negligible accountability relative to that normally found in most businesses. This deplorable situation exposed the government to even greater risks of waste, fraud, and abuse. With the federal government's total operating budget currently in excess of $1 trillion annually, we who are responsible for corporate financial management found this situation completely incomprehensible and intolerable.

Responding to these concerns, the Congress, in the last hours of the 101st Session, enacted the CFO Act. This new law provides broad statutory authority to officials responsible for financial management in the Office of Management and Budget and in 23 departments and executive agencies. The Act enjoyed strong bipartisan support in both the House and Senate, and the Administration has expressed a strong commitment to its implementation.

PROVISIONS OF CFO ACT

While the CFO Act creates new reporting responsibilities for the Office of Management and Budget, the General Accounting Office, and individual Inspector Generals, it is the new responsibilities of the Executive agencies that I bring to your attention today. The new responsibilities of departments and agencies include the following.

(1) The CFO Act directs that all 14 cabinet departments and nine major agencies shall have a Chief Financial Officer who shall report to the agency head. Department CFO's and the CFO's at EPA and NASA shall be appointed by the President and confirmed by the Senate and be at executive level IV. The remaining

agency CFO's shall be appointed by the head of the agency and be career government servants.

(2) Agency CFO's must possess demonstrated ability in general management and knowledge of and extensive practical experience in financial management practices in large governmental or business entities.

(3) OMB is required to issue guidelines on how agencies should reorganize their financial management operations under the agency CFO. Upon receiving the guidelines from OMB, the head of each agency must submit a reorganization proposal to the Director of OMB. OMB has 60 days to approve or disapprove the proposal and notify the head of the agency.

(4) Not later than June 30 of each year, each department and agency shall prepare and have audited financial statements for their revolving funds, trust funds, and commercial activities for the preceding fiscal year. It also requires six departments, two administrations, and two services to prepare agency-wide financial statements on a test pilot basis. The statements are intended to identify financial weaknesses and vulnerabilities within agency operations. The statements and audits for each agency shall be submitted to OMB which shall submit a final copy of the reports to Congress.

(5) Government Corporations are required to prepare financial statements and audits each year. The corporations must also submit an annual management report to Congress not later than 180 days after the end of their fiscal year.

APPROPRIATION SUBCOMMITTEE ISSUES

Members of Financial Executives Institute's Committee on Government Liaison are very concerned about the level of resources directed to implement this new law. We have prepared the following suggested questions which we urge you to pose to agency heads under your Subcommittee's jurisdiction. We have also taken this opportunity to prepare elements of what we perceive to be the appropriate response by the departments.

(1) **Question: Has your agency identified a Chief Financial Officer and Deputy Chief Financial Officer in accordance with the CFO Act of 1990?**

Suggested Response: By this time, all departments and agencies should have identified Chief Financial Officers.

The CFO Act directs that departments and major agencies shall have a Chief Financial Officer who shall report directly to the agency head. Each of these CFOs will have a deputy who shall be appointed by the head of the agency and have a career reserved position in the Senior Executive Service. Sixteen of the 23 agency Chief Financial Officers are to receive compensation at the executive level IV.

This new law was not seen as a vehicle to simply elevate current incumbents to a new senior level. Framers of the CFO Act envisioned the cabinet departments searching extensively for personnel with broad experience as a senior financial executive in a corporate or government setting. New offices should be developed separating the finance function from other administrative responsibilities of a federal agency. Additionally, the office of the CFO should have adequate manpower and budgetary support to successfully carry out its mission.

(2) **Question: What is the background and experience of your Chief Financial Officer and what authority does this individual hold?**

Suggested Response: All Chief Financial Officers should possess demonstrated ability in general management and knowledge of and extensive practical experience in financial management in large governmental or business entities. Section 902(a) of title 31 prescribes the authority and functions of the agency CFO. They include:

A. Report directly to the head of the agency regarding financial management matters;
B. Oversee all financial management activities relating to the programs and operations of the agency;
C. Develop and maintain an integrated accounting and financial management system, including financial reporting and internal controls;
D. Recommend to the head of the agency individuals to be selected as the Deputy CFO;
E. Direct, manage, and provide policy guidance and oversight of agency financial management personnel, activities and operations in the areas of implementing the five-year financial management plan prepared by the OMB Director, recruitment of financial management personnel, systems design, and asset management systems;
F. Prepare and transmit an annual report to the agency head and the Director of OMB, which includes an analysis of the status of financial management in the agency, including any annual financial statement and audit report, and a summary of the report on internal accounting and control systems;
G. Monitor the financial execution of the budget of the agency in relation to actual expenditures and prepare timely performance reports; and
H. Review, on a biennial basis, the fees, royalties, rents and other charges imposed by the agency for services and things of value it provides and make recommendations on revising those charges to reflect costs incurred by the agency in providing the services.

(3) **Question: What steps have been taken to prepare the department's financial statements?**

Suggested Response: Section 303(a) of the Act amends Subchapter II of chapter 35 of title 31, U.S. Code, by adding a new section 3515. Section 3515(a) requires agencies to prepare financial statements by March 31, 1992 and each year thereafter, for agency revolving and trust funds and for agency offices, bureaus, and activities which performed substantial commercial functions during the preceding fiscal year.

Section 3515(b) requires that financial statements reflect the overall financial position of the agency revolving funds, trust funds, and offices, bureaus and activities covered by the statement, results of operations, cash flows or changes in financial position, and a reconciliation to the budget of the agency.

The standards necessary for consistent development of departmental financial statements are still being prepared by the Office of Management and Budget and the Federal Government Accounting Standards Advisory Committee. Agency heads should note their responsibilities in this area and discuss the detail of guidance received from OMB and the agencies timetable to prepare such statements.

HAVASUPAI TRIBE

STATEMENT OF DON WATAHOMIGIE, CHAIRMAN

The Havasupai Tribe is pleased to submit testimony regarding the Committee's consideration of Fiscal Year 1992 Agriculture appropriations.

Section 1677 of the "Food, Agriculture, Conservation, and Trade Act of 1990" authorizes the Secretary of Agriculture, acting through the Extension Service, to establish appropriate extension education programs on Indian Reservations. However sufficient funds were not appropriated to implement the intent of the act.

The Havasupai Tribe desperately needs a full-time Extension Specialist to be located on our Reservation to work with the Havasupai people. Our reservation is a remoteness area with the town of Supai being located in the Grand Canyon, eight miles from the nearest road. We have 180 acres of irrigated farm land which provides subsistence to our people. With the help of a professional Extension Specialist we could greatly improve the productivity of our farms, gardens and orchards.

We have 150,000 acres of rangeland which would support 1,200 animal units year long if properly developed and managed. We need a professional Extension Specialist to help us reach this goal.

We have young people who would benefit greatly from organized 4-H clubs. However, due to our remote we are not able to get assistance to the extent necessary to train leaders and work with our youth. We need a professional Extension Specialist to help train our leaders and work with our youth.

An Extension Specialist can provide tribal members with information and coordination of U.S. Department of Agriculture programs, provide technical assistance to us on farming and ranching, run 4-H programs, and provide meaningful linkages to the University of Arizona. We see this as an opportunity to help motivate our young people to go on to college after high school and major in natural resources programs.

Our reservation is 180,000 acres and exceeds the acreage recommendations of the Intertribal Agriculture Council for justifying a full-time Extension Specialist. We want to get started immediately with our extension program.

We ask Congress to appropriate funds necessary to implement section 1677 of the Farm Act on a national level because of the benefit it will have to Native Americans across the country. We specifically ask Congress to earmark funding for the Havasupai Tribe to provide one full-time professional Extension Specialist for our Reservation.

Thank you for the opportunity to address your Committee. We appreciate your support of extending extension programs to Indian reservations.

(4) Question: What level of funding and personnel (FTE) has been identified to fulfill the CFO function?

Suggested Response: The Financial Executives Institute does not recommend a level of funding or personnel necessary to perform this function in each department or agency. The subcommittee should ensure, however, that the agency head has thoroughly considered the enormous undertaking required to establish appropriate financial systems and controls and to prepare annual financial statements. The key responsibilities of these offices will include:

A. Implementing government-wide, uniform accounting standards;
B. Issuing annual financial statements;
C. Planning long range for financial accounting and reporting systems;
D. Establishing federal financial management policies, practices, and internal controls;
E. Providing guidance to and assisting federal program managers in implementing integrated accounting systems and procedures;
F. Reviewing financial audit reports and responses and reporting material weaknesses to the agency head and Congress;
G. Providing guidance and consent on the appointment and evaluation of financial managers within the department; and
H. Establishing training standards for financial professionals throughout the department.

CONCLUSION

Again, let me restate our view that enactment of the Chief Financial Officers Act of 1990 was not meant to simply codify "business as usual." Framers of the CFO Act called for fundamental reform of the federal government's financial management practices. These reforms included: (1) appointment of senior financial executives named by the President and confirmed by the Senate, but selected on solid experience in the financial management arena; (2) departmental CFOs supported by deputies with years of proven financial experience in government entities; (3) adequate funding and manpower to perform enhanced financial responsibilities; (4) preparation of financial statements; and (5) audit of agency financial practices by the General Accounting Office and Inspector Generals.

The corporate financial executive community calls upon the Appropriation Subcommittees of the House and Senate Appropriation Committees to ensure that the provisions of the CFO Act are carried out to the fullest intent of the law. If you require further information, please contact Kevin Sabo, FEI's Manager of Government Relations, at 202-659-3700.

HEALTH INDUSTRY MANUFACTURERS ASSOCIATION

STATEMENT OF JACK H. MAGAZINE, PRESIDENT

Mr. Chairman, my name is Alan H. Magazine and I am President of the Health Industry Manufacturers Association (HIMA). On behalf of HIMA's member companies, I would like to thank you for the opportunity to submit this statement in regard to fiscal year 1992 (FY92) funding for the Food and Drug Administration (FDA).

HIMA is a national trade association representing nearly 300 manufacturers of medical devices, diagnostics, and health information systems. HIMA companies account for more than 90% of the health care technology sales in the United States. For this reason, a vigorous and effective FDA is of vital concern to our members.

The Administration has requested $770 million for FDA in FY92, an increase of $80 million over the FY91 figure. The budget targets $113 million for the Center for Devices and Radiological Health (CDRH), which has the responsibility of approving and monitoring medical devices. This amounts to a 12.5% increase in funds for CDRH. CDRH was also allotted a total of 1,478 full time equivalents (FTEs) for FY92, an increase of 87 over 1991.

At a time when the federal budget is under severe pressure from a growing deficit and there is no shortage of deserving programs seeking increases, the request for FDA may seen generous. However, we believe that it is modest in light of the amount of work that FDA is required to do.

HIMA member companies and staff have a great deal of respect for the expertise and professionalism of the FDA staff, especially those who serve at CDRH. Our concern about FDA's effectiveness is related to available resources, not the quality of the personnel. It is no secret that the responsibilities that have been mounting steadily at FDA have severely strained its resources. Even the most committed staff eventually reaches the limit of what can be accomplished when too many tasks are spread among too few people.

A good argument can be made that this limit was reached at FDA during the 101st Congress. In 1989 and 1990 more than half a dozen major new programs were enacted that dramatically increase FDA responsibility in many areas, including device regulation. We would like to concentrate on the impact of the Safe Medical Devices Act of 1990 (SMDA) because device regulation is an area where we have considerable experience.

Even before the effective date of SMDA, there were signs of strain at FDA. The approval time for all classes of devices rose in FY90, according to FDA's Office of Device Evaluations (ODE). For premarket approvals (PMAs) the increase was 19%. For PMA Supplements, it was 10%, and for 510(k)s it was 19%.

According to ODE, the major reasons for the increases were a large number of complicated PMA's and some internal changes FDA made to improve consistency among 510(k) decisions. Although approval times have improved somewhat recently, FDA itself estimates that this improvement will be short-lived, and that approval times will again begin to lengthen as implementation of SMDA begins.

FDA reported earlier this year that it expects a 130% increase in the number of examinations of reports of alleged problems by hospitals and other users of devices as a result of additional requirements in SMDA. In addition, FDA will have to write at least eight regulations required by SMDA within the next 18 months. They range from describing the form and content of

510(k) summaries to implementing a humanitarian device exemption for devices intended to treat or diagnose conditions that affect fewer than 4,000 individuals.

The likelihood of FDA being able to successfully discharge its mission of ensuring that safe and effective products come to the market in a timely fashion has been greatly enhanced by the appointment of Dr. Kessler as Administrator.

Members of HIMA's Executive Committee met with Dr. Kessler recently and were impressed with his qualifications and dedication. In Dr. Kessler's public testimony before Congressional committees this year, and in our meeting, he has repeated his goals of restoring FDA's credibility and integrity through strong enforcement, bolstered management, and reduced review time for product applications.

We strongly believe that a proper balance needs to be struck between timely product approval and enforcement, especially in the case of devices. The growth and creativity of America's $31.2 billion health care technology industry is the envy of the world. HIMA recently released a report entitled "Competitiveness of the U.S. Health Care Technology Industry." This study highlights the excellent performance of this industry in the international market place. In 1990, American health care technology registered $6.5 billion in exports and a $3.2 billion trade surplus. The report concludes that one of the important factors required for continued growth and competitiveness is an efficient FDA.

The management reforms envisioned by Dr. Kessler can lead to expedited product approvals, as well as fair, effective enforcement. It is clear that Dr. Kessler plans to emphasize enforcement; however, we are encouraged that he has stated that FDA needs to work harder to get life-saving products to the patients who are counting on them.

We would like to encourage the Subcommittee to keep the need for this balance in mind when deciding not only the size of FDA's FY92 budget, but also the distribution of the funds. For example, we note that the Administration has requested an increase of $5.2 million for medical device enforcement activities. We understand that this increase would allow FDA to have an additional 69 FTE's on its enforcement staff. According to published reports, these positions would be used to cope with the expected increase in user reporting and increase the frequency of device plant inspections.

While this allocation of personnel is understandable in light of the agency's increased responsibility under SMDA, we believe that at least an equal amount of funds should be devoted to the approval process. It would not serve the public interest to emphasize enforcement at the expense of approval times. The public will benefit most from the timely movement of safe and effective products to a market place that is regulated in an equitable and predictable manner.

HIMA is pleased to note that a portion of FDA's request is earmarked for revitalization of the agency. $5.5 million would be used to replace outdated computer and laboratory equipment and improve financial management and financial controls. Another $1.7 million would be used for more studies to consolidate the agency's 30+ locations into one facility.

It is critical that FDA employees have the tools to do their job as efficiently as possible. It is a tribute to FDA staff that so many excellent people have tolerated the agency's substandard facilities. This revitalization will have to continue as quickly as possible if FDA is going to be able to recruit and train a first class staff.

In summary, Mr. Chairman, HIMA supports funding FDA at a level that will enable it to discharge its formidable regulatory burden and move the numerous products, especially the thousands of innovative medical technology products it reviews annually, to the market as soon as possible. While we believe the Administration's 12% increase for CDRH is reasonable, we urge that enough resources be devoted to product approval so that approval times can be shortened. In any event, product approval times should not be allowed to slip because FDA is forced by a lack of funds to concentrate on meeting regulatory burdens. Finally, HIMA supports the revitalization of FDA.

Thank you again, Mr. Chairman for the opportunity to put HIMA's views in the record.

HUDSON RIVER FILM AND VIDEO CO.

STATEMENT OF JULIE MOTZ, EXECUTIVE PRODUCER

Mr. Chairman and members of the Committee, I am Julie Motz, executive producer of the Hudson River Film and Video Company. Last year I appeared before you to request an appropriation of $600,000 for a documentary film series on America's youth at risk. The Congress appropriated $175,000 for this projectin FY 1991 and I am here to ask that this support be continued in FY 1991. This will enable us to complete a one-hour documentary about the creative and courageous work being done in various parts of this country to prevent a generation of young people from being lost to us and to our country's future.

Our preliminary research has revealed that the problem of distressed, delinquent and dangerous young people is one which plagues rural and urban areas alike. No particular class, race, or group of children seems to be safe from the ravages of substance abuse, unwanted pregnancy and other forms of rebellion which put both themselves and others at serious moral and physical risk. Parents alone and schools alone cannot handle this. Least capable of all of responding to the needs of these desperate and alienated souls is the criminal justice system, which has become for our society a kind of holding tank of last resort.

It is essential that the public become aware both of the scope of this problem and of the hopeful solutions that have been emerging over the past few years. Americans need to be aware that this is both a national and a personal crisis, and that there are ways in which we, as individuals, can confront it and help turn it around.

The Extension Service and the Land Grant institutions have done some excellent work in supporting innovative efforts to reach young people and to change them, but much more needs to be done. The Youth At Risk film will both examine the successes and analyze the failures of a number of programs in this area. We will strive to distill the essential elements which enable a frightened and frightening child to become once more a trusting and trusted member of our society.

In closing I would like to thank the Committee for its past support of this project and for its support of our other documentary work dealing with the history and future of rural America.

HUMANE SOCIETY OF THE UNITED STATES

STATEMENT OF JOHN HOYT, PRESIDENT

The Humane Society of the United States (HSUS) and its 1,400,000 members and constituents appreciates this opportunity to submit comments relating to FY 1992 funding, specifically regarding the appointment of the National Organic Standards Board (NOSB) and the sustainable agriculture research and extension programs, and funds for enforcement of the Animal Welfare Act.

The National Organic Standards Board

The HSUS urges you to approve $300,000 in FY 1992 for first-year funding for the NOSB and implementation of the newly-authorized organic standards program. The Administration is now supporting a $120,000 spending level for this purpose which is inadequate considering the wide range of tasks the NOSB will be performing and the tight time frame allotted for these tasks.

As you know, the 1990 Farm Bill contains a provision establishing an Organic Certification Program, a program which is widely supported by farm, consumer, environmental, and animal protection groups. The key to initiating this program is establishment of the NOSB; the program cannot move forward until this is done.

The National Organic Standards Board will not only advise the Secretary regarding the implementation of the organic standards program at national, state, and local levels but it will also perform a broad range of statutory tasks as well. Statutory responsibilities that include the development of rules for implementation of the program at all levels, establishment of a list of approved and prohibited materials, assembling technical advisors to carry out scientific evaluations of materials, advising the Secretary regarding residue testing, and the enormous task of the scientific review of both current and proposed production and processing inputs. This extremely broad range of tasks, as well as the unique appointment of statutory responsibilities to this board, underscore the critical need for appropriate funding.

Funding will be needed for both the NOSB's work which is estimated to require at least six annual meetings, and for sufficient staff within the Agricultural Marketing Service, the lead agency for implementation of the program.

The HSUS urges you to approve an additional $180,000 for a total of $300,000 in FY 1992 for the NOSB and implementation of the organic standards program. This level of funding is crucial for the full implementation of this program in the 2-year time frame allotted.

Sustainable Agriculture Research and Extension

The HSUS supports the attached FY 1992 budget request for sustainable agriculture research and extension as proposed by the American Farmland Trust, et al.

We are particularly concerned that for FY 1992 the Executive Request for A. Low-Input Sustainable Agriculture Program (LISA) is only $4.5 million; for B. Sustainable Ag. Extension Program - County Agent Training zero $$; for C. Technical Guides and Handbooks zero $$; for D. Minority Farmer Outreach and Education on Sustainable Ag zero $$; for E. Composting Research and Extension Program zero $$.

The LISA program offers the farming community and the consumer public access to alternative sustainable agricultural practices and produce derived therefrom. In view of the urgency of integrating livestock and poultry production with ecologically sound agricultural and resource management practices, we urge that funding for the LISA program be increased to $30 million.

The LISA program's success is in part contingent upon funding these latter four program/projects since without educational materials and support of extension training and services, the necessary information and appropriate technology transfer from the LISA program to the farm sector will be extremely limited.

We therefore urge that funding for these latter programs/projects be implemented as follows: B: $15 million. C: $1 million. D: $3 million. E: $2 million.

Animal Welfare Act

Regarding the Animal Welfare Act (AWA)-- the chief law for protection of animals in the United States-- we are especially concerned about the trend of insufficient funding which has prevented proper enforcement of the AWA. For example, over the past year, The HSUS has documented (both in our publications and in the national media) the blatant violations of the AWA at numerous puppy mills across the country. At the current rate of funding the USDA is only conducting an average of slightly over one inspection per year of these and other facilities covered by the AWA.

The HSUS has signed on to, and strongly endorsed, the testimony submitted by the Society for Animal Protective Legislation for FY '92 appropriations of $20 million for the enforcement of the AWA, $500 thousand for enforcement of the Horse Protection Act and an increased allocaiton of ADC fund for non-lethal research.

[CLERK'S NOTE.--See referenced document on page 425.]

ILLINOIS, UNIVERSITY OF

STATEMENT OF STANLEY O. IKENBERRY, PRESIDENT, ET AL.

We wish to testify on behalf of the federally-funded project entitled "Studies to Reduce the Aflatoxin Problem in Corn" being carried out in the laboratories of Professors J. Widholm, A. Kriz, and D. White at the University of Illinois, Urbana, IL. Based on progress to date, the investment of federal funds will result in effective measures to reduce or eliminate aflatoxin in corn grain.

ACCOMPLISHMENTS TO DATE

A method was developed for inoculating corn ears in the field with the aflatoxin-producing fungus, Aspergillus flavus. The system involves a pinboard that slightly wounds kernels and injects spores into wounded areas. Ears are treated in this manner 20 days after pollination.

Fifteen popular commercial hybrids were inoculated utilizing the pinboard technique. Based on visual observation of fungal growth, these hybrids differed considerably in susceptibility to the fungus. The hybrids that were considered to present the worst aflatoxin problem in Illinois in 1988 were identified by the method as being among the most susceptible to the fungus. Further work will be done to refine the method to make it more rapid and effective.

A tissue culture system for screening hybrids for susceptibility to the aflatoxin-producing fungus is under development. The fungus grows very well on the cultures and in the medium used, so the scientists are studying methods to slow the fungal growth and induce resistance in the cultures. Initial results are promising.

Antifungal genes, coding for enzymes known to inhibit fungal growth, are being identified and isolated. They will be combined with seed-related promoter elements that will control expression of the antifungal genes. Then these recombined genes and promoters will be introduced into corn cells. The cells, in turn, will be regenerated into whole plants.

The objective is to assure that the antifungal characteristic will be strongly expressed in the seed, so that the antifungal enzymes will be present in the seed to prevent A. flavus growth and aflatoxin production. The difficult identification, cloning, and recombining phases of this work are nearly complete, so the genes will be ready soon for use to transform corn cells.

Studies are being carried out to measure the spread of A. flavus from infected kernels to uninfected kernels under storage conditions. The production of aflatoxin and the effect of low levels of fungicides on this production are also being investigated.

SUMMARY AND REQUEST FOR SUPPORT

This project is a multi-faceted approach to the aflatoxin problem in corn. It includes developing field screening techniques, tissue culture approaches, and genetic engineering techniques. The ultimate goal is to identify or produce corn genotypes that resist aflatoxin production. Such material can then be used by breeders to transfer aflatoxin resistance to other hybrids in wide use. Work is also proceeding on ways to control the problem in stored corn. An appropriation of $175,000 in FY 1992 will enable us to move forward on this important research initiative.

ILLINOIS, UNIVERSITY OF, AND LAND OF LINCOLN SOYBEAN ASSOCIATION

STATEMENT OF PHILIP NELSON, PRESIDENT, LAND OF LINCOLN SOYBEAN ASSOCIATION, ET AL.

We wish to testify on behalf of the proposed National Soybean Research Laboratory (NSRL) currently being developed at the University of Illinois at Urbana-Champaign. This project represents a bold initiative on behalf of the U. S. soybean industry. It is needed to help ensure the future competitiveness and profitability of the industry and to ensure that it will continue to make important contributions to the U. S. economy and U. S. consumers. The University remains deeply grateful for the Subcommittee's past support and requests $1.8 million in FY 1992 to complete the laboratory.

The soybean industry must be prepared to take advantage of emerging opportunities in global markets for soybeans and soybean products. The United States once dominated most of these markets but now faces strong competition from several other nations. The industry needs a comprehensive program designed to (1) identify important marketing opportunities, including new and improved ways of utilizing soybeans and soybean products, and (2) integrate genetic engineering, production, processing, marketing, and utilization research and education to achieve specific market goals.

NSRL scientists will develop new, effective, and efficient ways to manipulate the physical and chemical nature of soybeans. In cooperation with the private sector, NSRL researchers will develop new soybean varieties to meet specific market needs and new methods of processing, distributing, and marketing soybeans to capture new markets. This will give the soybean industry a solid base of information and developmental procedures from which to launch competitive initiatives.

It is important to note that this initiative has received broad-based support. In addition to the University of Illinois and the Land of Lincoln Soybean Association, this effort has been endorsed by various state soybean associations, the Illinois Farm Bureau, and the Governor of the State of Illinois.

REQUEST FOR SUPPORT

Because of your leadership and commitment, U. S. agriculture is the most productive agriculture in the world. This continuing commitment is reflected in the Subcommittee's approval of $3.2 million since FY 1989 for the NSRL.

Architectural design and development are essentially complete. With the federal funds provided to date, we are removing asbestos, performing necessary interior demolition in the existing structure and completing the new mechanical room and second floor renovation. The bidding process should be complete and construction well underway by mid-summer, 1991.

An additional appropriation of $1.8 million is necessary to complete renovation of the basement and first floor of the building. An appropriation for this purpose in FY 1992 will enable completion of the entire project by fall, 1993. When finished, we will have remodeled and renovated three floors of the Old Veterinary Medicine Building on the University of Illinois Urbana-Champaign campus. We believe it is very important to complete construction of NSRL as soon as possible, so its benefits will begin to accrue to the soybean industry and the general public of the United States.

The State of Illinois continues to make valuable contributions to the NSRL project. The shell of the building, valued at more than $5 million dollars, is sound. Having it enables us to finish the project much faster than if new construction was required. In addition, state funds have been used to establish a new South Campus utilities entrance serving NSRL and other facilities.

State funds will be used to construct a tunnel connecting the NSRL to the nearby greenhouse complex, thus enabling efficient transport of temperature-sensitive materials between greenhouses and laboratories. This connection will also facilitate movement of people and materials to other buildings that house important soybean research programs, personnel, facilities, and equipment. State money will also be used to develop the administrative space in the NSRL and to remodel an auditorium that will be very useful in NSRL educational and outreach activities. Additionally, the State of Illinois and the U. S. agricultural community are committed to providing moveable equipment for the facility, operating and maintaining the facility, and staffing it, henceforth.

SUMMARY

We request an allocation of $1.8 million in federal funds to complete the National Soybean Research Laboratory. This facility, staffed, operated, and maintained by the University of Illinois and its federal, state, and private cooperators and supporters, will be a great asset to the soybean industry, its customers, and the nation as a whole.

The University of Illinois at Urbana-Champaign, with its central location, outstanding support facilities, and strong institutional commitment to soybean research, is a superb setting for the National Soybean Research Laboratory. The Laboratory will be a strong national center focused on multi-disciplinary, multi-faceted soybean research and education and will enable the U. S. soybean industry to enhance its competitive position in the global agricultural economy.

INSTITUTE FOR ALTERNATIVE AGRICULTURE, INC.

STATEMENT OF DR. I. GARTH YOUNGBERG, EXECUTIVE DIRECTOR

The Institute for Alternative Agriculture is grateful for the opportunity to present testimony on the need for increased funding for sustainable agriculture and biological pest control. The Institute, which is governed by a 13-member Board of Directors that includes farmers, scientists, educators, and businessmen, seeks to advance agricultural systems that are resource-conserving, environmentally-sound, and sustainable in the long term, while remaining economically profitable.

This year the Institute has helped coordinate an appropriations proposal submitted by a broad coalition of sustainable agriculture supporters. In a general sense, this overall proposal has two major points: first, to fund sustainable agriculture initiatives, some new and some pre-existing, which are authorized in the 1990 Farm Bill; and second, to do so with new and reallocated funds. Given the realities of budget constraints, the coalition proposal articulates a way to implement the 1990 law which otherwise could leave many important initiatives underfunded, or in effect, ignored.

It is important to note that the request of $189.35 million for the coalition's total package is $110.25 million more than the amount funded for those programs in 1991. However, this comparison is not very meaningful. The reason is that the 1990 Farm Bill authorized several new sustainable agriculture programs and activities which, we believe, must now be supported through appropriations if current progress toward the goal of agricultural sustainability is to be sustained. In fact, of the total increase in funding requested for the coalition package, $57.85 million would be for previously unfunded programs and activities, most of which were authorized in the 1990 Farm Bill. The other $52.4 million would be to support needed increases in three previously authorized programs: The USDA Low-Input Sustainable Agriculture (LISA) research and education program, Agriculture Research Service (ARS) research on integrated and sustainable farming systems, and the water quality demonstration and management program administered by the Extension Service (ES).

While the Institute for Alternative Agriculture is keenly aware of the dilemma posed by any request for an increase in federal funding, we are convinced that sustainable agriculture research and education must be expanded, not modestly but dramatically, if American agriculture is to meet even minimal requirements of environmental and economic sustainability. At the same time, we firmly believe that the bulk of the funding requested to support that expansion can be obtained through careful redirection of funds from research and extension programs that conflict with or otherwise fail to support sustainability, as well as through the pooling of funds allocated to different USDA agencies for purposes of encouraging such an agriculture.

Let me turn now to recommendations of primary interest to the Institute.

We urgently request increased support in the FY 1992 budget for the USDA Low-Input Sustainable Agriculture (LISA) research and education program and for related and supportive programs established in the 1990 Farm Bill. The LISA program, which has provided funds for over 100 research and educational projects since its inception in FY 1988, continues to respond effectively to farmers' needs for practical and reliable information on sustainable practices. A major reason is the direct involvement of farmers in the process of identifying information needs, designing and carrying out LISA projects, and managing the program itself. At last count, some 1,860 farmers have participated in the program.

Aside from meeting the critical need for sustainable farming information, the LISA program, in effect, is creating and testing new models for cooperative research and education--models that link scientists and educators not only with farmers but with private nonprofit groups, industry representatives, and others to find and to share new knowledge and understanding of agricultural sustainability.

As an example of the innovative collaboration that distinguishes the program, the Environmental Protection Agency (EPA), this year, is adding $1.0 million to the $6.725 million in federal funds appropriated for LISA. A portion of those funds will be used to support much-needed research on the economic impacts of adoption of sustainable farming practices. The need for sound information of that kind is vital if policymakers and the public are to make informed decisions with regard to sustainable agriculture. Unfortunately, current information on impacts of sustainable farming is meager and often seriously flawed.

Despite strong growth in the support for sustainable farming from both farm and nonfarm sources, the LISA program still receives less than one-half of one percent of funds appropriated by the federal government for food and agricultural research and extension education. The FY 1992 budget recommended by the Executive Branch would reduce that appropriation back to the program's initial and inadequate funding level of $4.45 million.

We believe this is a serious mistake. The LISA program, which is producing practical results and setting an example of how to develop and disseminate facts to farmers, cannot begin to support the level of research and education that is now required. Accordingly, we believe that a minimum of $30 million should be appropriated for the program in FY 1992. We suggest also that a significant portion of the increased funding be devoted to the companion, federal-state matching grant program to support sustainable farming research and education in the states which was authorized in the 1990 Farm Bill.

Before turning to other matters, we would like to thank the members of this Committee who have been supportive of LISA funding in the past. Your good judgment and sensitivity of the needs of farmers wishing to move toward more sustainable systems, as well as the growing cadre of scientists and extensionists who are anxious to help them, have already paid rich dividends.

Other related provisions of the 1990 Farm Bill should also be funded. In particular, we recommend that the program to train Cooperative Extension county agents in sustainable agriculture be funded at $15 million, and that $1.0 million be allocated for the development of technical guides and handbooks on sustainable farming practices. Further, we would like to see $2.0 million appropriated for the new program of research and education on composting. Finally, the Institute recommends that $200,000 be allocated to support each of two new Farm Bill-authorized boards--the Agricultural Science and Technology Review Board and the National Organic Standards Board--and another $50,000 for a new Advisory Committee on Cosmetic Appearance.

Next, we would like to comment on the urgent need for increased funding of biologically based methods of pest control technologies which are critical to the long term development of truly sustainable farming systems. Certainly, we are supportive of USDA's efforts in water quality, food safety, and minor use pesticides. We particularly note the proposed increase for the development of biological control systems as a means to reduce pesticide use as part of the food safety initiative. However, we wish to emphasize that many of the biological controls are small market, minor use materials which will require substantial involvement of the public sector, working closely with the private sector, if many of the promising biological products are to become commercially available.

Also, because of the broad public concern about pesticides in food, USDA and the Agricultural Research Service (ARS) should be directed to coordinate the evaluation of pesticide residues on fruits and vegetables and target the development of programs to prevent excessive residues where they exist. We would encourage you to substantially increase the appropriations in FY 1992 for research on biological controls and recommend that you place those funds at major centers such as ARS's Beltsville Agricultural Research Center where substantial resources are already committed. Increased appropriations in the range of $2 million per year at one or more major centers is needed to have a major impact. A focused, well-managed research and development effort by federal and state agencies, closely coordinated with industry to accelerate the development of biocontrols, is needed to deal with the public concern about pesticides in food.

Thank you for thoughtfully considering these areas of sustainable agriculture research and education that are so urgently needed and so clearly and unambiguously deserving of increased funding. Your concern for helping to develop the research and education infrastructure needed to foster a truly sustainable agriculture system in the U.S. is greatly appreciated. Future generations will be equally grateful for your foresight, understanding, and courage.

THANK YOU

INTERNATIONAL APPLE INSTITUTE

STATEMENT OF DERL I. DERR, PRESIDENT

To: **U.S. Senate Committee on Appropriations**
Subcommittee on Agriculture, Rural Development
and Related Agencies

From: **INTERNATIONAL APPLE INSTITUTE**
on behalf of the U.S. Apple Industry

Re: **APPLE RESEARCH FUNDING REQUEST**

Action Requested

- $3 million be added to the USDA Agriculture Research Service (ARS) fiscal year 1992 budget for apple research.

Program Request Summary

- The apple growers of the country have recently experienced an extremely difficult period as a result of the unprecedented Alar scare. The industry has taken significant steps and is investing substantial funds in promotion and education (in excess of $20 million annually) to restore their products strong marketplace position. It is important to the consumer that this be accomplished because apples are a nutritious and healthy dietary basic.

- An aggressive, well targeted research program is the other needed major dimension in rebuilding product confidence and long-term competitiveness for the apple industry. An extensive investigation of the apple industry's research position has been completed. Two high research priority needs have surfaced -- reduction of pesticides and postharvest technologies.

- This research request has been reviewed and endorsed by ARS program leaders. We believe it is in the public's interest that these apple industry research needs be addressed.

- More specific information about the request, including details about the research priorities are setforth in the attached statement.

The International Apple Institute (IAI) is an association serving and representing all segments of the apple industry. The association's membership consists of 24 state/regional organizations of producers who grow approximately 90% of the U.S. apple crop and over 600 individual firms who handle and market the bulk of the nation's apples.

SUMMARY OF

The International Apple Institute's (IAI) apple research add-on request and support of research programs in the USDA's 1992 budget.

PART I - ADD-ON REQUEST

The IAI proposes an increase to the budget of the USDA Agricultural Research Service (ARS) for apple research to be implemented in $3 million annual increments over a consecutive two-year period beginning with fiscal year 1992

and to be fully implemented at the $6 million level in fiscal year 1993. (see attachments A & B).

PART II - SUPPORT OF RESEARCH PROGRAMS IN THE USDA 1992 BUDGET

The IAI supports the research funding request contained in the USDA 1992 fiscal year budget proposal. The IAI specifically supports the $716.7 million program level of the Agricultural Research Service (ARS). The IAI also urges that the $5.1 million to construct a replacement laboratory for fruit and vegetable research in Yakima, Washington be affirmed.

The IAI extends its budget support to include USDA's food safety initiatives, most specifically the $30.8 million of funding to provide for a multi-agency pesticide data program. Additionally the USDA is urged to give high priority to Integrated Pest Management (IPM), the IR-4 Minor Use Pesticide Program and clearances in issuing special research grants within the Cooperative State Research Service (CSRS) program.

ATTACHMENT A

International Apple Institute (IAI) Apple Research Proposal

An initiative for a funding increase to be added to the budget of the USDA Agricultural Research Service (ARS) for apple research. It is requested the increased funding be implemented in $3,000,000 annual increments over a consecutive two-year period beginning with fiscal year 1992 and to be fully implemented at the $6,000,000 level in fiscal year 1993. This phase-in provides for maximum efficiency in the start-up and subsequent continuation of needed new research projects.

The following allocation of funds, according to research priorities, is requested:

Priorities	Fiscal Year Funding Level	
	1992	1993
Reduction of Pesticides	$1,500,000	$3,000,000
Postharvest Technologies	1,250,000	2,500,000
Other	250,000	500,000
TOTAL	$ 3,000,000	$6,000,000

The justification and discussion of priorities follows:

JUSTIFICATION - Apples are a nutritious and healthy dietary basic. The consumer must receive fruit of predictable quality. Growers must be able to produce apples with a minimum of chemicals and cost. Fruit that will pack, store, and ship without decay or breakdown is much more capable of being marketed domestically or exported.

Research levels have diminished and apples have not received research attention commensurate with the size of the crop and its gross value. Add-on values developed in storing, packing, handling and shipping sustain considerable employment in rural areas.

Apples have several unique research needs and problems to be solved. Because research techniques suggest imminent "breakthroughs", an increase in the ARS budget to conduct research in the following priority areas would well serve the interests of the American public.

REDUCTION OF PESTICIDES - To conduct research that will result in lessening of use of pesticides in the growing, handling, storing and processing of apples. Currently, apple trees must be sprayed several times a year for a multitude of disease and insect pests.

In order to grow consumer acceptable apples growers use various chemicals for control of disease, insects, weeds and other pests. Such controls can amount to 20% of cost of production. There is a desperate need to reduce use of chemicals while retaining fruit quality and reducing costs to growers.

Although some alternative control approaches are promising, there continues to be 35 or more diseases, insects, and other pests that attack apples. Some very promising scientific discoveries show merit as techniques for combatting such pests and reducing use of persistent chemicals.

An example is the research involving distribution in the orchard of fibers saturated with sex pheromones (scent) which confuse males seeking females for mating, thus dramatically reducing reproduction of codling moth. Codling moth is the cause of worms in apples in all production areas of the U.S. Chemicals presently used to combat codling moth also destroy beneficial insects that help control other pests.

Technology needs to be perfected for successful non-chemical control of codling moth. There are many other similar possibilities with insects, mites, aphids, and other pests.

In the pathology area, there are promising antagonistic bacterial organisms, "good" bacteria that can consume "bad" bacteria. Those need to be nurtured to develop non-chemical systems of disease control also show promise in scientific experiments.

Reduction of sprays would further protect the consumer from residues, reduce air, water and soil pollution, and lessen hazards to farm workers.

POSTHARVEST TECHNOLOGIES - To conduct research on the postharvest aspects of apples to enhance the keep-ability, reduce the use of chemicals for pathogens and maladies in stored fruit, perfect systems of segregating apples based on internal quality, firmness or other criteria. To develop technology that will reduce loss of stored fruit, extend the keep-ability and thus the marketing season, ensure a consistent high quality apple for the consumer, and enhance the export potential of apples.

To provide a consistent high quality product to the consumer, sustain exports and ensure that apples will retain flavor and firmness in storage without rotting, promising technologies need further research attention.

Firmness is a universal measurement of quality. Apples from a given box will vary considerably in firmness, and thus in keep-ability and consumer acceptance. Promising research that could result in instrumentation in the packing line that would measure each fruit for firmness and segregate those less firm from more firm is under development and needs to be pushed forward.

A storage technique involving use of very low oxygen, if perfected, promises to reduce "scald", a discoloration of the skin of the fruit that is now controlled with chemical agents. Perfection of scientific knowledge in that area would reduce use of chemicals, improve quality and greatly enhance export potential.

Study of relation of mineral nutrition, particularly calcium to protect quality, storage and market life, is an area of intense need. Research with use of antagonistic bacterial to control decay in stored fruit is as applicable as use of beneficial bacteria in growing.

OTHER - In addition to the above high priority areas there is a significant list of other problems which can be solved through focused research projects. These include investigations in the areas of mineral nutrition in both the tree and fruit; the perfection of mechanical harvest or other systems of mass removal from trees for the fresh market; new rootstocks and varieties that best meet the needs of U.S. growers; growth regulators to ensure tree size control, enhance annual bloom, and adequately thin over-set crops of apples, and the effective control of weeds and animal predators.

These are examples of areas where scientists, with additional funds, could more rapidly achieve success in developing methodologies of use to all aspects of the apple growing, handling, and marketing chain.

ATTACHMENT B

Facts About Apples and the Apple Industry in Support of Funding Apple Research

THE APPLE . . .

- is grown as over 2,500 varieties in the United States -- however, fifteen popular varieties account for about 90% of the production -- in fact, eight of these (Red Delicious, Golden Delicious, McIntosh, Rome, Granny Smith, Jonathan, York & Stayman) account for 80% of U.S. production;
- is a popular, healthy, regularly consumed food year round -- according to Fresh Trends 1991 apples topped the health list with 26% of consumers citing apples as a purchase for health reasons -- nine out of ten families purchase apples and apple products regularly;
- is rich in fiber, has no cholesterol, only 81 calories -- and a delicious flavor;
- is uniquely versatile for the consumer -- the apple can be crunched, cooked, sliced, diced, sauced, sipped, and even candied, garnished, or used as a decoration;
- there is no stopping the apple as America's favorite fruit.

THE U.S. APPLE INDUSTRY . . .

- in an average year produces 225 million bushels of apples -- production reached over 255 million bushels for the record 1987 crop;
- produces nearly 40 pounds of apples per capita -- that's equivalent to about 100 apples per person in the U.S.;
- grows apples commercially in 36 states. Top producing states include Washington, New York, Michigan, California, Pennsylvania, Virginia and North Carolina;
- is made up of over 10,000 commercial growers who are individual family owned small businesses operating over 483,000 acres of bearing orchards;
- gross returns to growers exceeds $1.2 billion annually ranking apples second only to grapes as a leading non-citrus fruit produced in the U.S.;
- in addition to growers, consists of more than 1,000 specialized firms which add another $1 billion in value through the handling, processing and marketing of apples;
- generally 55% of the U.S. apples are eaten as fresh fruit and 45% processed into apple products. Of those processed annually, approximately 45% is pressed into juice; 35% canned mostly for sauce, with the remaining 20% frozen, dried or other purposes such as baby food, apple butter, jelly and vinegar;
- production is located 54% in the West; 31% East, and the balance of 15% in the Central states;
- is a net exporter of fresh apples with annual exports over the past 5-years ranging from 8 to 17 million bushels. This is offset by imports which have been relatively stable at the 6 million bushel level during this same period;
- ranks high as a global producer of apples -- producing over 20% of the reported world commercial production (Russia & China do not report); 25% of the Northern Hemisphere total apple crop, and 83% of the apples grown in North America;
- provides a top performing product for the retailer with the most recent (1989) report showing apples representing 25% of all fresh fruit sales.

STATEMENT OF THE INTERTRIBAL AGRICULTURE COUNCIL

The InterTribal Agriculture Council (IAC) is an organization of 64 dues paying member Indian Tribes who together control 44 million acres, or 81 percent of the 54 million acres held in trust by the United States for Indian people. The IAC was founded by charter in 1987 to promote improvement in Native American and Alaskan Native agriculture. We are governed by a Board of Directors composed of elected Tribal representatives from each of the twelve regions of Indian Country reflecting the diverse character of Indian Agriculture.

We have three main areas of concern relating to the Department of Agriculture's 1992 budget justification. These are: 1) Continued support for the newly started Reservation Extension Agent Program, 2) Implementation of the authorization levels for the Indian Land Acquisition Program under the Farmers Home Administration, and 3) Much needed implementation of Section 2501 of the Food, Agriculture, Conservation and Trade Act of 1990 (FAct Act) to support community outreach and the Tribally Controlled Community Colleges. Each of these three topics is treated below.

1. Cooperative Extension Service.

> Reference: Title XVI - Research, Subtitle H - Miscellaneous Research Provisions, Section 1677 - Reservation Extension Agents, FACT Act of 1990.

Extension Agents serve in the critical role of community liaison to all USDA and University Agriculture Programs. For the past several years the InterTribal Agriculture Council has worked with the US Department of Agriculture to enhance Indian participation in Extension Service programs, as a cornerstone to improving USDA/Indian relations. Along with other provisions directed at improving access to USDA services by Indian people, the Reservation Extension Agent Program specified in Section 1677 of the 1990 Farm Bill represents the first time in history that specific Indian language has been included in major Department of Agriculture authorizing legislation. We in the IAC are proud of our participation in the effort to reestablish the critical Reservation Extension Agent program on a limited basis and are now very disappointed to read that the Department's budget specifically discontinues this program.

The original IAC research into the needs and potential for this new extension program suggested a very bare bones budget of 6.5 million to implement this program, and then only on the very largest Indian reservations. Last year a million dollars was provided by Congress to begin the implementation of this valuable program as soon as possible after it was authorized in the FACT Act.

The first year intent was to fund only about 10 agent positions so no advertisement or major outreach was attempted by any organization to promote this small program in the Indian communities. However, we are informed by administrators of the Extension Service that the response by the States and Tribes to the initial program has been unexpected and overwhelming. Despite the very low profile approach the Extension Service has received more than 75 individual proposals, submitted jointly by cooperating states and Tribes, to provide extension services to the Indian communities. These proposals require an federal appropriation of more than 8 million dollars if they are all awarded. More importantly, these proposals include match contributions from the States and Tribes which exceed the levels of federal dollars requested. In other words, the Extension Service has received written proposals developed cooperatively by States and Tribes, which total more than 16 million dollars, less than 6 months after the very beginning of this brand new program. This level of need and interest cannot be overlooked.

Four major initiatives are listed in the 1992 USDA budget proposal for Extension. These are 15 million dollars for the Youth at Risk Program, 15.5 million for the Water Quality Program, 2 million in the Food Safety Program, and 58.6 million in the Low Income Nutrition Program (EFNEP). Justification for the Youth at Risk increase specifies: Poverty, Alcohol and Drug abuse, Welfare dependency, and Teen Pregnancy as the major targets for this program. No where in rural American are youth more at risk from these four fActors than on our rural Indian Reservations, yet the small program which would ensure that Indian communities could access these services is slated for termination before it can even get started.

The IAC and our member Tribes are specifically requesting funding to the Extension Service to accomplish the specific provisions of the FACT Act. Restoration of the one million deleted from the 1992 budget and an increase of 5.5 million to a total of 6.5 million is requested to comply with the intent of Congress, and to fund this program at the bare bones level.

2. Indian land Acquisition Program, FmHA

> Reference: Title XVIII - Credit; Subtitle C - Miscellaneous;
> Section 1854 - Indian Land Acquisition Program.

The Indian Land Acquisition Programs administrated by the Farmers Home administration was created by Congress as a first effort at finding solutions to the jurisdictional and management crises facing Indian reservations as a result of frActionated land heirship and checkerboarded land ownership patterns. This program provides Tribes with the ability to purchase lands within their jurisdictional area to consolidate ownership and management functions. The authorization for this program was raised from 2 million to 8 million in the FACT Act.

The Department of Agriculture has not requested the necessary appropriations to implement this statutory change and Congressional direction. In recent years the FmHA has funded this program at one million dollars, and reports limited Activity. The funding level has been so low that in many years a single loan to a Tribe has taken the entire appropriation. In most recent years this explains the low Activity level.

We are requesting that Congress direct the Department to utilize the full authorization of 8 million dollars for the purpose for which it was intended, that is the solution of long standing land ownership problems on Indian reservations. Since FmHA has resources extending well into the Billions of dollars we are not requesting an additional appropriation. We are requesting that the committee and the Congress mandate that 8 million dollars of the total FmHA appropriation will be used specifically for the Indian Land Acquisition Program.

3. Outreach for Socially Disadvantaged farmers and Ranchers.

> Reference: Title XXV - Other Related Provisions, Section 2501 (a) (3) - Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers.

A widely based coalition of minor[illegible] and American Indian organizations sought the support of Congress for the development of an improved outreach and service delivery system for disadvantaged agricultural producers. Section 2501 of the FACT Act is the result. This section contains specific direction in developing the program and most importantly to the IAC, finally lists Tribally Controlled Community Colleges among organizations eligible to participate in USDA education and outreach programs.

Improved education of our people has long been the over riding priority for our Tribes. This relatively simple and straight forward section of the FACT Act finally recognizes this priority, and is considered a major coup in Indian Country.

We recognize that the Department prepared its 1992 budget priorities and justification statements well before the inclusion of this section in the FACT Act last fall, but now it is time to implement the programs which Congress has authorized in this section of the FACT Act. Rather than wait another year for the Department to request the appropriate funding levels for this critical program, we are requesting that this committee and the Congress mandate implementation this year through the appropriation process.

We in the IAC are happy and honored to add our voice to that of the many other community service organizations and institutions of higher learning in formally requesting that 10 million dollars be appropriated to implement Section 2501(a) (3) of the FACT Act in fiscal year 1992.

The Board of Directors of the Intertribal Agriculture Council, on behalf of our 64 member Tribal governments, are grateful for the opportunity to submit testimony on these issues of importance to the Indian Agriculture community before the Senate Appropriations Subcommittee on Agriculture and Related Agencies, and would be most anxious to answer any questions or clarify any points if requested by the committee.

STATEMENT OF IOWA STATE UNIVERSITY

Summary Of Request

Iowa State University is supportive of efforts to increase the National Agricultural Library's budget in the area of biotechnology in order to support the Biotechnology Information Pilot Project initiated in FY91 with an increase of $2.5 million to the NAL's budget request.

Biotechnology is a major new research area for land-grant institutions and the National Agricultural Library. The information and publications needed by libraries to support this research is very expensive; and much of it is in electronic format. Funding is requested to continue the work to establish a Midwest Biotechnology Information Center which would create a network approach to library collections and electronic data bases in the area of biotechnology. The Center will be a cooperative effort of the National Agricultural Library and a consortium of Midwest libraries. This consortial approach could serve as a model for future cooperative efforts in other specialized subject areas of mutual benefit to the National Agricultural Library and appropriate libraries. The two major focuses of the initiative are (1) the cooperative collection of biotechnology related information and (2) electronically networking thus giving all involved access to the information.

The following is an update relative to the initiative.

PROGRESS REPORT ON THE

MIDWEST AGRICULTURAL BIOTECHNOLOGY INFORMATION CENTER

A pilot project proposal for FY91 start-up funding of $2,500,000 to create a Midwest Agricultural Biotechnology Information Center was submitted to Congress in 1989/90. In response to the pilot project proposal, Congress instead funded a $250,000 base increase to the National Agricultural Library (NAL) budget to begin planning for and implementing early stages of enhancements to biotechnology information systems in agriculture via this information center. The Biotechnology Information Center is a cooperative effort among the National Agricultural Library and seven midwestern landgrant libraries. The National Agricultural Library has signed a Cooperative Agreement with the Iowa State University Library (ISU) to coordinate the project and to partner with NAL on implementation of the various aspects of the project.

The Steering Committee for the project met at NAL in Beltsville, Maryland on January 29-30, 1991 to begin the planning portion of the project. The project will have two components: (1) collection development in all formats (print, electronic, etc.), and (2) design and first stage of implementation of an online network for the distribution of biotechnology information in electronic format among landgrant libraries and NAL. The Steering Committee has formed two working groups, the Network and Database Design Group and the Collection Development Group.

Staff from NAL and ISU attended a March, 1991 Conspectus Workshop held by the Association of Research Libraries to receive training in the methodology of subject analysis to be used in the planning phase. The Collection Development Group will meet at Iowa State University on April 26, 1991 to begin to apply a Conspectus-like methodology to the analysis of biotechnology information needs and division of responsibilities among NAL and the participating landgrant libraries.

The Network and Database Design Group defined the goal of the working group as follows: "To develop a model for the creation of and access to distributed databases using common interfaces over the NSF Internet." The group laid out tasks to be completed by the participants between January and September, 1991 with first year funding. This includes making NAL a node on the Internet, testing telecommunications connections between the participating sites, and comparing efficiencies of storage and retrieval with one or more databases on the ISU mainframe versus a high-end workstation server. Participants will meet at Iowa State University on August 12, 1991 for project updates and setting of next steps.

The second year of the project will require funding at the original request level to proceed with implementation of hardware and software to support the network and to begin to provide the information and database resources identified by the Collection Development Group as critical to agricultural biotechnology research in the United States.

FINANCIAL SUMMARY, FY92 - FY94
MIDWEST AGRICULTURAL BIOTECHNOLOGY INFORMATION CENTER

	FY92	FY93	FY94
Capital Costs:			
NAL computer hardware/software	$ 750,000	300,000	250,000
ISU computer hardware/software	500,000	100,000	100,000
Land grant workstations & FAX	200,000	50,000	50,000
Operating Costs:			
NAL (3 staff/equipment/travel)	225,000	250,000	275,000
Cooperating libraries (3.5 information specialists)	175,000	195,000	215,000
Data bases and publications	650,000	750,000	750,000
Project Total	2,500,000	1,645,000	1,640,000

LOUISIANA AQUACULTURE ASSOCIATION

STATEMENT OF WALTER LANDRY, PRESIDENT

Thank you Mr. Chairman, for the opportunity to present supporting testimony on behalf of the Regional Aquaculture Center. My name is Walter Landry. I am a sugarcane farmer, an aquaculture producer, and presently serve as President of the Louisiana Aquaculture Association (LAA). My entire career has been spent in agriculture. In an effort to diversify my farm and to take advantage of the many natural areas in Louisiana available for aquaculture, I now produce crawfish, catfish, striped bass, redfish and shrimp. As President of LAA, I represent over 3000 producers of aquaculture products in Louisiana in 150,000 acres of controlled ponds and 300,000 acres of leased oyster bottoms. In 1990, aquaculture farm level sales reached over $125 million to producers of crawfish, catfish, oysters, softshell crabs, softshell crawfish, alligators and other finfish in Louisiana. Value added processing of the farm production pushed the 1990 economic impact up to $372 million.

In the past we have received invaluable production, processing and marketing information from our universities and extension scientists. They have provided the latest information which allows us to make better decisions and help keep our operations profitable. Before the formation of the Regional Aquaculture Centers in 1987 information and research was spread over a large group of people, departments and agencies with little coordination between principal groups and agencies. Since the formation of the Centers, research and extension aquaculture programs have been effectively coordinated throughout the nation. This has been the strength of the program. The research and extension functions of the Centers have greatly impacted our aquaculture industries. For example, in a Southern Regional project both regional and national markets were identified for aquaculture products (catfish and crawfish). These new markets provide additional outlets for Louisiana products. The results of funded marketing research has greatly assisted the producers and processors of aquaculture products in Louisiana.

Production research and extension demonstration projects have been conducted on aerators, water recirculation, water quality, diseases, nutrition and harvesting systems. All of these areas are critical if aquaculture is to continue to expand. The Regional Aquaculture Centers can fund coordinated projects that utilize the best expertise from the region. The cooperative efforts of regional scientists result in better information and also avoids duplication. This is the way to do business - to consolidate scientists and budget.

Educational, species-specific material in the form of fact sheets, bulletins and videos covering recommended production methods has been produced. This information can save new producers time and money. If they have all available updated information at their disposal, their aquaculture operation can be managed with the best chances of success. Producers are pleased to have industry representation within the structure of the Centers. We face constantly changing problems in our operations and therefore we must be able to help determine priorities and rank research projects that will solve our industry problems. The Industry Advisory Committee is composed of all representatives of major fish, shellfish and mollusks cultured in the region. Our needs in various areas of research has effectively been answered by the Regional Aquaculture Centers.

The Southern Regional Aquaculture Center has been effective in planning research efforts in anticipation of future problems. In February there were work group sessions on food safety in regards to the possible implementation of the Hazard Analysis Critical Control Point (HACCP) program. This effort and others is indicative of the Center's value to the aquaculture industry in Louisiana and to the nation.

The aquaculture producers appreciate the help and support of this Subcommittee. The authorizations of $7.5 million for five Regional Centers was only funded at $3.75 million in FY91. We hope that you will provide the fully authorized $7.5 million for the five Regional Aquaculture Centers in the FY92 budget. This budget is necessary for public and private efforts which support aquaculture if growth is to continue.

Thank you for the opportunity you have given me to offer these comments of support for the Regional Aquaculture Centers.

Sincerely,

Walter Landry, President
Louisiana Aquaculture Association

LOUISIANA CRAWFISH PROMOTION AND RESEARCH BOARD

STATEMENT OF HAROLD H. BENOIT, CHAIRMAN

We genuinely appreciate the opportunity to submit written testimony in support of the Regional Aquaculture Centers. I am Harold H. Benoit, a crawfish producer from Morse, Louisiana, and I also serve as Chairman of the Louisiana Crawfish Promotion and Research Board. The Louisiana Crawfish Promotion and Research Board strongly supports the concept and structure of the Regional Aquaculture Centers. Title XIV of the Agriculture and Food Act of 1980 and the Food Security Act of 1985 authorized the establishment of regional aquaculture research, development and demonstration centers in the United States (Subtitle L, Section 1465[d]). The Centers encourage collaborative research and extension programs designed to compliment and strengthen existing programs provided by the Department of Agriculture and other public institutions. Members of the Louisiana Crawfish Promotion and Research Board have been impressed from the very beginning with the Center concept.

The authorized level of funding for the Regional Aquaculture Centers is $7.5 million. Actual annual funding to date, however, is well below the authorized level, with only $3.75 million appropriated in FY91. We are requesting funding for the Regional Centers, which serve the entire United States, at the authorized $7.5 million level for FY92.

The Louisiana crawfish industry, as we know it today, began about 30 years ago. There are now over 120,600 acres in crawfish production in Louisiana consisting of more than 1,600 individual ponds that produced 61 million pounds of crawfish in 1990. This industry continues to employ approximately 15,000 people in our state, and the on-farm value of production was approximately $34 million in 1990. Crawfish aquaculture now occurs to some extent in 25 states. As with most new agricultural crops, much help is needed in the areas of production, harvesting and marketing. We would like to emphasize the fact that crawfish production costs, particularly harvesting costs, must be decreased to insure profitability to producers. Research and extension efforts to address these important areas are now underway through projects funded by the Southern Regional Aquaculture Center (SRAC). Results from these projects will be extremely beneficial to our industry. Preliminary results from these studies indicate that the number of traps/acre and trapping days can be reduced without having a negative effect on production. The studies also show that this management technique results in larger crawfish. It is readily apparent how valuable this study is to the producer because harvesting cost is reduced and a better crawfish is produced.

The U.S. imports 70% of the seafood it consumes. The crawfish industry is unique because we exported 3.5 million pounds of crawfish to Europe last year. This export market represents only a very small part of our balance of trade, but is indicative of the potential for expanded exports for U.S. aquaculture products. In 1989, five additional projects were initiated. These included research and extension programs on catfish disease control, nutritional studies for improved quality and storage of catfish, and the development of improved techniques for harvesting and grading catfish and crawfish. Another project will address development of procedures for collecting statistical data urgently needed by the aquaculture industry for more effective and efficient production and marketing strategies. A SRAC study on the performances of aeration systems for channel catfish, crawfish and rainbow trout is a very important project because it provides scientific documentation that aerators improve water quality in crawfish ponds and increases production. The area of improving water quality by moving water needs more study because crawfish culture will become more intensive in the future. Results from these projects have already enhanced the position of aquaculture as an alternative agricultural crop, not only for the Southern Region but also for other regions of the country. Each project that is funded has input and review from research, extension and industry personnel so that practical, well-integrated programs, relevant to industry needs, are selected.

Again, we encourage funding at the authorized $7.5 million level for the five existing Regional Centers. We are excited about the Regional Centers because we know they are working toward addressing our industry problems.

Thank you for providing us the opportunity to submit this testimony on behalf of the Regional Aquaculture Centers.

Sincerely,

Harold Benoit, Chairman
Louisiana Crawfish Promotion
and Research Board

STATEMENT OF HON. JOHN McCAIN, U.S. SENATOR FROM ARIZONA

Thank you for the opportunity to submit testimony regarding the President's 1992 budget for programs administered by the U.S. Department of Agriculture. I would like to bring to your attention my concerns regarding the recommended funding level for the Commodity Supplemental Food Program (CSFP).

As you know, CSFP provides nutritious commodities to supplement the diets of low-income pregnant women, new mothers and their children, and the elderly. CSFP performs a very important function helping women, children, and senior citizens who are barely getting by on a limited income.

The food items rendered to these needy individuals is often simply the difference between having the basic foodstuffs we all require, or going hungry. I've heard from hundreds of Arizonans who have told me how much they relied on CSFP to help stretch their meager budget for food, and how grateful they were for the assistance.

In one county in Arizona, elderly CSFP recipients are dropped off the case list after six months, and they then wait for six months so another senior citizen can receive a food box during that period. To their credit, they do so without complaint, recognizing that many of their fellow citizens are in great need of assistance, as well.

CSFP is a program that really works, and it is one that helps fulfill our responsibility to help feed the needy in America. CSFP reaches out to segments of our society that are edging close to truly impoverished circumstances. A couple living in Yavapai County, Arizona that receives these vital commodities may live on as little as $8,400 a year.

I'm especially concerned about the potential impact on the elderly of the Administration's proposed budget for CSFP in 1992. Many elderly recipients of CSFP have no pension after a lifetime of hard work, and face high monthly medical costs due to their infirmities. They endure with quiet grace and dignity, and do their best to stretch their budgets just to be able to eat decently each month.

As recommended by the President, the CSFP program would be budgeted at approximately $90 million in 1992, a decrease of $3 million from this year's total budget. If enacted, this cut may cause states to reduce their CSFP caseloads -- most likely by dropping large numbers of elderly citizens from the program.

I strongly believe that this budget request is inadequate. I hope that the Subcommittee will increase the funding allocated CSFP in 1992 to a level where each participating state can expand its women, children, and elderly caseloads. The Congress and the Administration should join together in boosting the funding for this worthy program.

Mr. Chairman, I want to thank you and all the members of the Subcommittee for significantly increasing the number of needy women and children who were added to the CSFP rolls in 1991. I hope that this achievement can be repeated during the upcoming appropriations process.

Thank you very much for your consideration of my views on the Commodity Supplemental Food Program.

Sincerely,

John

John McCain
United States Senator

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

STATEMENT OF CARL BORONKAY, GENERAL MANAGER

Fiscal Year 1992 Funding for the Department of Agriculture's Colorado River Salinity Control Program

I am writing to request your support for adequate federal funding for the Department of Agriculture's Colorado River Salinity Control Program (Program). The Program was authorized by Congress under the Colorado River Basin Salinity Control Act and the Clean Water Act. The Metropolitan Water District of Southern California is responsible for meeting the supplemental water requirements of 15 million people and the economy which supports them. In 1990, Colorado River water was used to meet nearly 50 percent of these supplemental needs.

Metropolitan is concerned with maintaining the quality of this vital source of water supply. The President's proposed fiscal year 1992 budget provides funding of $14.78 million for the Department of Agriculture's extremely cost-effective onfarm Program. The Colorado River Board of California and the Colorado River Basin Salinity Control Forum, the interstate organization responsible for coordinating the Basin states' salinity control efforts, have recommended that an additional $7.22 million be appropriated. Total funding of $22 million is necessary to meet the onfarm salinity control activities schedule in order to maintain the water quality standards adopted by the seven Colorado River Basin states and approved by the Environmental Protection Agency. The Colorado River Basin states and farmers in the Uinta Basin of Utah, the Big Sandy area of Wyoming, and the Grand Valley, McElmo Creek, and Lower Gunnison areas of Colorado stand ready to pay their combined 51 percent share of the costs of this Program. In addition, Program implementation in the Moapa Valley area of Nevada and investigations in the Price-San Rafael area of Utah and the Hammond area of New Mexico depend upon the appropriation of adequate federal funding.

Metropolitan concurs with the recommended funding level of $22 million for the Department of Agriculture's activities. Your assistance and support in ensuring sufficient funding of the Colorado River Salinity Control Program for 1992 and beyond would be greatly appreciated by Metropolitan.

Very truly yours,

Carl Boronkay

Carl Boronkay
General Manager

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

STATEMENT OF NICHOLAS J. MELAS, PRESIDENT

SUMMARY RECOMMENDATIONS

PL 566 - Small Watershed Program	$250 Million

On behalf of the Metropolitan Water Reclamation District of Greater Chicago, I want to thank the Subcommittee for this opportunity to present our priority request for FY 1992, and express our appreciation for your support of the PL 566 Small Watershed Program in years past. Flooding and related problems have been part of the history of the Chicago area since its earlier days. Our geographical location and flat terrain cause widespread flooding problems over large areas.

The Metropolitan Water Reclamation District (MWRD) was established in 1889 and has the responsibility for sewage treatment, flood control and stormwater management in Cook County, Illinois. MWRD has assumed a flood control leadership role in the metropolitan area. In partnership with the Federal Government, particularly through the Soil Conservation Service's PL 566 Small Watershed Program and the flood control program of the Corps of Engineers, we are addressing the issue of flood control on a regional basis. Within its jurisdiction, MWRD usually acts as the principal local sponsor of SCS watershed projects and is generally responsible for the acquisition of land rights. To underscore our local commitment to this program, we have expended 76 million dollars to date of local taxpayers' money.

Over the years, MWRD and the Illinois Division of Water Resources, together with other units of local governments, have funded and constructed 52 projects costing $107 million in this area, not including 16 projects involving the Soil Conservation Service.

We want to stress that, although we are referring to SCS involvement in the Chicago Metropolitan area, the projects the District has funded involve strong soil erosion control elements, as well as technical assistance for land protection.

In 1971, the Water Reclamation District entered into a cooperative agreement with SCS to prepare river basin plans and paid over $1,000,000 to fund the effort. The purpose of the effort is to investigate flooding problems along the following rivers in the metropolitan area: Des Plaines, North Branch of Chicago River, Little Calumet, Poplar Creek, Calumet-Sag and Salt Creek Watersheds. The primary goal of this study was to develop comprehensive plans to reduce existing floodwater damages. The problems and needs in each watershed were considered. As a result, projects were developed and are now being implemented through the cooperative efforts of federal, state and local agencies.

One such plan, which was implemented in FY 1984, is the Little Calumet River Watershed Plan in Cook and Will Counties. When completed, this project will provide benefits to the following communities: Tinley Park, Midlothian, Markham, Harvey, Dolton, Calumet City, Lynwood and Lansing. Flooding now causes damages to an estimated 7,000 homes and 150 businesses, erosion to about 30,000 acres of agricultural land in the watershed, as well as disruption of traffic. The watershed consists of 136,500 acres of land in a rapidly developing rural/urban area. The plan was developed to provide watershed and environmental enhancement through an accelerated land treatment program to reduce flood damages by implementing structural and non-structural flood control measures, and to provide increased water-based recreation. Included are excavated reservoirs, flood proofing of structures, channel maintenance and soil conservation practices. When completed, over $4 million in estimated annual flood damages, principally overbank flooding, will be prevented.

Last November's devastating flood events in the south suburban Chicago area, which resulted in a presidentially-declared flood disaster due to deaths and serious damages to the area, underlined the importance of completing the Little Calumet project. In an effort to reduce the known flood threat, we are now working with SCS to expedite the construction of a critical element of the plan soon.

Another plan being implemented by SCS in cooperation with the MWRD is the Watershed Plan for the Lower Des Plaines Tributaries. This watershed plan encompasses an area of 381 square miles, home to 1.2 million residents in 68 municipalities. Within the watershed, floodwater damages had averaged $10.3 million annually. The recommendations of the plan, now well underway, will reduce annual floodwater damages by $7.8 million, benefitting 21,000 acres of flood prone lands and protecting 2,497 residences and 203 businesses, commercial and public buildings from flooding.

A third plan which has been implemented by the SCS in cooperation with the MWRD and the Illinois Division of Water Resources is the Uppeer Salt Creek Watershed Plan. This Watershed Plan covers an area of 52 square miles with a population of over 100,000 in six municipalities. The six reservoirs envisaged by the Plan have all been completed, with the last one completed in 1984. The total cost of the reservoirs is $54 million, of which local governments paid $25 million. The completed plan produces annual benefits of $3.3 million to 1200 homes and 1200 property owners.

Mr. Chairman, I cite MWRD's experience with the PL 566 program as a means of saying here is a federal program that works. Projects undertaken with its funding can, and do, save lives and property from the devastating effects of flooding.

In reviewing the administration's FY 1992 budget, I was disappointed, as I am sure you were, to note that the already minimal funds for PL 566 were reduced from the FY '91 current levels to a request of $122.5 million. We have appreciated the Committee's support of the program over the years, but we believe this dynamic and effective program needs additional funds to better address the small watershed needs of the country and to reduce the overwhelming backlog of projects ready to proceed. In Illinois alone, the backlog of approved projects which are ready to move forward represents $55 million in funds.

Congress has provided an adequate level of PL 566 funding in the past. I am asking you to do so again--to provide at least $250 million in FY 1992 funding for the small Watershed Program, which is the figure the Soil Conservation Service advises it needs to keep this program solidly moving forward.

Again, we appreciate your prior support of this program and we ask your consideration of our request.

MIDWEST PLANT BIOTECHNOLOGY CONSORTIUM

STATEMENT OF DR. DAVID DICKERSON, CORPORATE RESEARCH AND DEVELOPMENT, ANHEUSER-BUSH COMPANIES, INC.

SUMMARY OF REQUEST: The Midwest Plant Biotechnology Consortium supports competitive projects in the North Central States for research and technology transfer in plant biotechnology. The Consortium requests $5 million in FY 1992 to support the continuation of projects started in 1991 and new starts in 1992.

Mr. Chairman, thank you for the opportunity to testify. My name is David Dickerson and I am the Research Manager over Raw Material Development at Anheuser-Busch Companies, Inc. Anheuser-Busch Companies, Inc. is a St. Louis, Missouri-based diversified corporation whose subsidiaries include the world's largest brewing organization, the country's second-largest producer of fresh-baked goods and the second-largest theme park operation in the U.S. It also has interests in container manufacturing and recycling, malt production, rice milling, international brewing and beer marketing, snack foods, international baking, refrigerated and frozen foods, and many other businesses. I am here today in the position of Chair of the Secretariat for the Midwest Plant Biotechnology Consortium, of which Anheuser-Busch Companies, Inc. is a member.

In its appropriations for fiscal years 1989 and 1990, the Congress appropriated a total of $4.375 million for the biotechnology research and technology transfer program of the Midwest Plant Biotechnology Consortium, an industry-university-federal laboratory consortium. With these funds the Consortium has been able to conduct two competitions and start up two groups of research projects in plant biotechnology. One group is beginning their second year of research and the other is just initiating their research. The appropriation for fiscal year 1991 was $2.73 million. On behalf of the Consortium's 33 corporate members and 19 member university and research institutes, I express our appreciation for your support. We have submitted a management proposal for the use of the 1991 funds to USDA, and expect approval soon. Officials of the Department have been most helpful and cooperative.

Plant biotechnology has the potential for invigorating and diversifying the agricultural economy. The goal of the Midwest Plant Biotechnology Consortium is to bring together industry, universities, and federal laboratories to conduct research in plant biotechnology to: 1) utilize agricultural products as new sources of chemicals, pharmaceuticals, and energy; 2) reduce the cost of crop production; 3) improve utilization of existing crops; and 4) develop an agriculture that is safer in its impact on the environment.

The concept behind the Consortium has been enthusiastically supported by industry, universities, and federal laboratories alike. All parties involved see new technology as a key component in the success of American competition in global agribusiness.

A total of 27 projects with a start-up date of January 1, 1991 were funded from the FY 1990 appropriation. The commitment of industry to the Consortium's work can be seen easily by its allocation of matching funds for these excellent and innovative research projects. The matching of federal money with industry funds demonstrates private sector appreciation that the program works and benefits everyone. The companies and corporate associations that have made financial commitments totaling nearly $1 million (a 40 percent increase over the previous year) include: Abbott Laboratories; Agrigenetics/The Lubrizol Corporation; American Malting Barley Association; Anheuser-Busch Companies, Inc.; Asgrow Seed Company; CIBA-GEIGY Corporation; DowElanco; E. I. du Pont de Nemours & Co.; Entotech, Inc.; LiphaTech, Inc.; Monsanto Company; Northern Plant Genetics, Inc.; Northrup King Research Center; Pioneer Hi-Bred International, Inc.; The Procter & Gamble Company; Quaker Oats Company; Rohm & Haas Co.; and Sogetal, Inc.

Companies are committing funds to more than one research project. Of the eighteen companies that are currently funding projects, five companies are funding 2 to 4 projects each and three additional companies are funding 5 or more projects each. These corporate commitments increase the effectiveness and impact of federal research dollars. The continued cooperation of industry and the federal government in this program will contribute to the economic strength of agriculture in the United States.

State governments and private foundations have also been very active in supporting the Consortium research and technology transfer program, and have made financial commitments of over $1.5 million to these Consortium projects.

The total funding from all sources for the Consortium's 1990-1991 research and technology transfer program is over $5 million.

Fourteen projects deal with diseases and pests which reduce crop productivity. These projects are designed to lessen crop losses and reduce the quantities of agricultural chemicals needed to fight pests. Reduced dependency on agrichemicals will improve the environment in areas such as ground water. The reduced chemical use should also decrease farmers' crop production costs.

Two Consortium projects investigate modifications to industrially useful enzymes. This research will help expand markets for crops by improving the efficiency of making high-fructose corn syrup. It could also increase the quantity of industrially important enzymes in crops.

Eleven projects focus on gene mapping or gene transfer and expression in agricultural plants. This research seeks to improve the nutritional value of crops and other critical traits and to understand better the basic genetic processes in crops grown in the Midwest.

As a result of personal interactions between corporate representatives and academic scientists at Consortium-sponsored meetings, many companies have established on-going dialogues with university and federal laboratory scientists. Some of these have resulted in funding for additional plant biotechnology research projects. These spin-off projects further leverage the federal funds of the Consortium.

The Consortium is the organizational mechanism that links players in plant biotechnology and coordinates their functions in order to bring about the efficient transfer of new knowledge and new technologies from the laboratory to the marketplace. The program is relatively young, but has received high marks by both industry and universities since its inception. The benefits derived from the work of the Consortium will not be realized unless the research progresses to the point where new projects and processes can be tested in the field. We urge Congress to continue to support the program's contributions to the future success of American crops and to the United States' position in the global marketplace. Your support will help assure that our nation's agricultural exports continue to show a positive trade balance as they have for the past several years.

The fiscal 1991 appropriation of $2.73 million will be used to continue existing projects for a second year and to start new projects. A rigorous competition for new projects is already in progress. We anticipate the 1991 research projects will begin this July.

We are here to thank you for the support you have provided in the past, and to request that the appropriation to the Consortium be increased to $5 million so that the research program can grow and so that current projects can be continued. Speaking on behalf of my industrial colleagues, we feel that the Consortium's program is critical in helping to keep United States agriculture competitive in global markets.

Thank you very much for this opportunity to testify.

MULTI-CROP AFLATOXIN WORKING GROUP

STATEMENT OF HOWARD VALENTINE, CHAIRMAN

Mr. Chairman and members of the subcommittee: I am Howard E. Valentine, vice president-marketing of the Golden Peanut Company of Atlanta, Georgia. I also serve as chairman of the Multi-Crop Aflatoxin Working Group, and submit these comments on behalf of that organization.

The Multi-Crop Aflatoxin Working Group is an informal alliance of producers, processors and marketers of peanuts, corn, cottonseed and tree nuts, formed to seek scientific solutions to the problems faced from natural contamination of crops with aflatoxin. A list of the members of this group, and the wide range of agricultural interests represented, is attached.

Aflatoxin, a toxic by-product of naturally-occurring molds, costs American farmers and producers hundreds of millions of dollars each year due to lost production and the expense of identification and control measures. The Council for Agricultural Science and Technology has reported that major costs are borne by producers, handlers, processors, consumers and regulatory agencies. Precise loss figures are difficult to quantify, but one study has shown that losses to southeast corn producers alone are in the $100 million/year range.

In addition, consumers and international food regulatory groups, are demanding crops and products that meet ever-decreasing specifications for levels of natural contaminants such as aflatoxin. In the face of these two pressures, it is imperative that we find ways not only to control aflatoxin, but also to prevent its formation.

Fortunately, scientific developments of the past several years have suggested several ways in which this objective might be met. The working group has identified significant ways in which modern bio-science may be able to provide us with crops which are not susceptible to aflatoxin-producing molds and ways to render these molds incapable of producing toxic by-products.

In FY 1990, your committee agreed to increase USDA-ARS funding by $750,000 to begin an expanded program devoted to prevention of aflatoxin formation. In FY 1991, you concurred with the recommendations of the Working Group that this amount should be increased, and directed the ARS to devote $1.6 million of the increase in its food safety budget to this goal. Together, these funds have enabled the ARS to expand its core program, and meet the approximately $2.5 million increased annual level which research directors in industry and producer organizations have told us is necessary for this project to eliminate aflatoxin by the year 2000.

ARS has moved quickly to implement this new program. Sixteen new research projects have been started using the funds provided by this committee. These projects cover the full range of technical disciplines envisioned by the Working Group and are being conducted in all of the states where aflatoxin is a concern to agricultural producers. These projects have been funded with the advice and review of senior researchers from producer, processor and marketing organizations, and our Working Group feels that they represent a practical and integrated approach to eliminating aflatoxin from U.S. commodities. A list of the projects funded under this program in FY 1990 and 1991 is appended to my statement.

Beyond this federal commitment, the individual members of the Working Group are devoting significant portions of their private research funds to projects designed to eliminate aflatoxin. This public-private partnership recognizes that producers, processors and consumers all stand to gain by elimination of aflatoxin from the food supply.

The Working Group, and each of the commodity organizations involved, appreciate very much the strong commitment the Subcommittee has made to resolving this serious food safety problem. We believe that this effort represents one of the most positive and pro-active efforts underway by the U.S. today to improve the quality of our commodities and their safety for both U.S. and foreign consumers. Further, we believe that, between the current budget for competitive grant projects and the amounts requested by the ARS for FY 1992 to maintain its overall post-harvest food safety mycotoxin program, an adequate funding level is being devoted to this goal. We are certainly aware of the intense pressures you face in allocating a limited amount of agricultural research funding among numerous projects, and feel that the level of funding for this project in relation to the overall agricultural research budget is appropriate. The costs of aflatoxin to U.S. agriculture are such that continuation of the commitment you have made will pay major dividends to U.S. agriculture and consumers in the future.

Thank you, and we appreciate your concern and support on this issue.

MULTI-CROP AFLATOXIN WORKING GROUP

American Corn Millers Federation
6707 Old Dominion Drive
McLean, Virginia 22101

California Pistachio Commission
1915 N. Fine Avenue
Fresno, California 93727

Corn Refiners Association, Inc.
1100 Connecticut Avenue, N. W., Suite 1120
Washington, D. C. 20036

National Corn Growers Association
1000 Executive Parkway, Suite 105
St. Louis, Missouri 63141

National Cottonseed Products Association
P. O. Box 12023
Memphis, Tennessee 38182

National Cotton Council
1110 Vermont Avenue, Suite 430
Washington, D. C. 20005

National Peanut Growers Association
P. O. Box 1282
Dothan, Alabama 36303

National Peanut Council
1500 King Street, Suite 301
Alexandria, Virginia 22314

Prune, Raisin, & Walnut Marketing Board
3445 N. First, Suite 101
Fresno, California 93726

MULTI-CROP AFLATOXIN WORKING GROUP FUNDING - FY 1990

Corn

Identification of Molecular Markers Associated with Genes for Preharvest Resistance in Corn to *Aspergillus flavus* and Aflatoxin Production. T. R. Rocheford, University of Illinois, Urbana, IL

Development of Biological Control Agents to Prevent Preharvest Aflatoxin Contamination of Corn (Corn) Laura Sweets, Iowa State University, Ames, Iowa

Peanuts

Identification of Peanut Germplasm with Resistance to Aflatoxin. Corley Holbrook, Coastal Plain Experiment Station, Tifton, GA

Breeding Peanuts for Aflatoxin Resistance. Tom Stalker, N. C. State University, Raleigh, NC

Cotton

Management of Aflatoxin Contamination of Cottonseeds Using Seed-borne Endophytic Bacteria. I. J. Misaghi, University of Arizona-Tuscon, Tuscon, AZ

Tree Nuts

Genetic Variation in the Resistance of Various Cultivars of Pistachio, Almond, and Walnut to *Aspergillus flavus/parasiticus* and Determination of Environmental and Ecological Factors Necessary for Stable and Efficient Preharvest Aflatoxin Suppression Facilitated by the Use of Atoxigenic Strains of *A. flavus/parasiticus*. T. Michalides, Univeristy of California, Berkely, CA

Generic

Molecular Approaches to Control Aflatoxin Contamination of Food Sources. Gary Payne, N. C. Sate University, Raleigh, NC

Biological Control of *Aspergillus flavus* and *Aspergillus parasiticus* by *Paecilomyces lilacinus*. Dave Wilson, Coastal Plain Experiment Station, Tifton, GA

Biochemical, Environmental & Microbiological Resistance for Preharvest Aflatoxin Resistance. Dick Cole, National Peanut Research Lab, Dawson, GA

Biocontrol of *A. flavus* Using Biocompetitive Agents, Enhancement of Host Plant Resistance. Ed Cleveland/Peter Cotty, Southern Regional Research Center, New Orleans, LA

MULTI-CROP AFLATOXIN WORKING GROUP FUNDING - FY 1991

Corn

Selection of high temperature tolerant lines of maize as an approach to obtaining *Aspergillus flavus* resistant maize. D. Doehlert. USDA, Peoria, IL

Interactions among insect damage, varietal sensitivity and plant-water stress contributing to aflatoxin contamination in maize food crops. J. Dunlap, Texas A & M, College Station, TX

Identification of molecular markers associated with genes for preharvest resistance in corn to *Aspergillus flavus* and aflatoxin production. T. Rocheford. U. of Illinois, Champaign, IL (Renewal)

Ecology of *Aspergillus flavus* under cultural practices for corn in Iowa. D. McGee. Iowa State University, Ames, IA (Renewal)

Peanuts

Breeding Peanut cultivars with resistance to preharvest aflatoxin contamination. C. Holbrook. USDA - Tifton, GA (Renewal)

Production and testing of transgenic peanut lines with enhanced resistance to *Aspergillus* Species. A. Weissinger. N.C. State University, Raleigh, NC

Interactive effects of lesser cornstalk borers, *Aspergillus* incidence and aflatoxins in peanuts. K. Bowen. Auburn University, Auburn, AL

Cotton

Management of aflatoxin contamination of cottonseeds using seed-borne endophytic bacteria. I. Misaghi. U. of Arizona, Tuscon, AZ (Renewal)

Pre-harvest monitoring and control of aflatoxin formation in cottonseed. D. Park. U. of Arizona, Tuscon, AZ

Tree Nuts

Ecological relationships, agronomic practices and biological control of *Aspergillus flavus/Parasiticus* and genetic variation in the resistance of various cultivars of pistachio, almond, walnut and pecan. T. Michailides. U. of California, Berkeley, CA (Renewal)

Generic

Characterization of genes for aflatoxin biosynthesis. G. Payne. N.C. State University, Raleigh, NC (Renewal)

Immunochemical studies on enzymes involved in the biosynthesis of aflatoxin. F. Chu. U. of Wisconsin, Madison, WI

Biological control of *Aspergillus flavus* and *Aspergillus parasiticus* by *Paecilomyces lilacinus* and field ecology of the *A. flavus* group inoculum in Georgia soils. D. Wilson. U. of Georgia, Athens, GA (Renewal)

NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

1890 COOPERATIVE EXTENSION PROGRAM

STATEMENT OF GILBERT TAMPKINS, ASSOCIATE ADMINISTRATOR, LANGSTON UNIVERSITY

I am Gilbert Tampkins, Associate Administrator of the 1890 Cooperative Extension Program, Langston University in Oklahoma, the 1890 Representative for the FY 1992 Budget Committee, Division of Agriculture, and member of the Budget Committee, Extension Committee on Policy.

I appreciate the opportunity to express my support for Land-Grant Colleges and Universities' FY 1992 budget request. More specifically, communicate the need and value for Extension programs emanating from the sixteen, 1890 Land-Grant Colleges and Universities and Tuskegee University to maintain a strong, responsive infrastructure for Extension related activities.

The 1890 Colleges and Universities have done a superb job in reaching the hard-to-reach and providing access to those individuals whom we have classified as being left behind. Through Extension program activities thousands of families and individuals have improved their level of living and are in sight of achieving part of the American dream.

Those involved in the changing role of Extension education must possess a vision to not only see needs as they are, but to view them as they will be. Failure to possess such a vision means we have not and cannot adequately respond to public concerns. This is not to say we should look for quick-ill fixes but instead, optimal delivery systems for applying knowledge and technology. 1890 Extension recognizes that change is inevitable and needed, and, continues to mobilize and pursue necessary resources to address pertinent problems and concerns of people, especially those absent from the mainstream of society. Over the past three years, Extension at 1890 Institutions and Tuskegee University has reallocated resources to strengthen programs, staff, management practices and the ability to have a greater impact on people served, while address specific issues of wide public concern.

Unprecedented changes now characterizing the U.S. are the Food and Agricultural system, the social system, the educational system, environmental technologies, and the globalization of markets and expanding technology which will significantly affect how and with whom 1890 Institutions do business in the future. That concern alone justified the need for an 1890 Extension Leadership Conference (May, 1990) where the administration and staff met to begin to set in place an agenda through the year 2000.

Historically, under represented groups tend to cluster in fields they perceive as friendly and where they can exercise their talents fully, without discrimination and with a good chance of recognition and reward. When this fact is ignored by providers, these groups do not develop to their fullest potential. The groups referred to in this statement are not restricted to race, sex or national origin but include farm families, infants, youth, adults and the elderly, skilled labor, unskilled labor, single-parent families, teenage mothers and fathers, etc. The pattern of low expectations is evident throughout these groups and planned sustainable improvements require systematic changes.

Poverty continues to penetrate and grip a large number of children and adults, including a disportionate share of minority children. It takes away people's capacity to dream and desire to move themselves from the stronghold of poverty. It affects the total person, the family, community, local, state and federal governments, which translates into no skills, no education, no money and no hope.

1890 Extension has addressed issues of under-represented groups for years, using modest or very limited resources. Relationships of a decade ago are no longer valid, and sweeping adjustments to current trends are necessary. Now, it needs help in building institutional capacity and procedure that will strengthen programs in support of a long term strategic approach to meet the needs of the under represented groups. To paraphrase the honorable Harry C. Mussman, Deputy Assistant Secretary for Science and Education, USDA at the Business Session of the 1890 Council of Presidents/Chancellors, 1989 NASULGC Conference, "1890's are making a major contribution in scientific and social issues. This is not to say there is no room for expansion. Many practices that have been refined and fine tuned in sustainable agriculture can be expanded as effective methods for working with limited resource farmers. This issue has high priority in USDA and on global climate changes. 1890's are an under utilized resource and that needs to be remedied". It is therefore important that we put forth a united front in the pursuit to remedy this and other concerns.

For the past few years, there has been an increase in collaborative efforts among 1890 Institutions, between 1890 and 1862 Institutions, and among 1890 Institutions and federal, state and county agencies and groups to do joint, multi-state, multi-region interdisciplinary programs. This mode of operation has added significantly to the quality and diversity of education and information outreach efforts of these institutions. That trend is expected to continue into 1992 and beyond. It has helped in shaping the 1991 and 1992 budget recommendation for 1890 Institutions and Tuskegee University.

The 1992 budget submission for Extension at 1890 Institutions and Tuskegee will assure maintaining needed base programs but place particular attention on high priority targeted issues to effectively address them.

Base funding (27,000 million) represents the federal commitment to long-term State-Federal partnership with 1890 Institutions and Tuskegee University that provide continuing programs. Failure to keep these funds at the previous year level will constitute a reduction in program opportunity for the benefactors and providers. These funds give 1890 institutions greater capability to respond to changing needs and priorities indicated below.

A. Advance the opportunity for limited resources persons and groups locally, nationally and globally.
B. Provide an educational pathway to learn, develop, make decisions, set goals and develop self-esteem for youth and families who are at risk.

C. Seek ways to work cooperatively with a wide range of universities, governments, businesses, and private sectors organizing to describe dynamic experiences for key leaders and clientele.

D. Build a staff to a level of expertise who can meet the challenges of societal issues more effectively through training, publications and education while demonstrating alternative methods and options toward the resolution or abatement of societal problems.

Special targeted programs for 1890 Colleges and Tuskegee University address very critical and essential needs apparent across the nation. Five million dollars are included in the FY 1992 for support of these programs.

Teen-age Pregnancy and Health (3 million). Since 1985 approximately $16.7 billion has been spent annually on aid for dependent children, food stamps and Medicaid for families affected by birth to a teenager. Known strategies can be implemented to reduce the monetary and human costs.

Surveys of food attitudes of adolescents have revealed that they are very weight conscious, have unrealistic views about their body images, and have poor eating habits characterized by skipping meals and snacking. Education and support programs can be implemented to help them adopt sound eating habits and healthy life styles.

The economic costs of alcohol and drug abuse are more than four times that of cancer and nearly three times greater than for cardiovascular disease. Education and support programs that help individuals cope with economic, social and psychological stress will help reduce these dependencies.

Sustainable Agriculture/Small-Scale Farmers (2 million). Most small farmers are producing only one or two major commodities, without choosing among sufficient and profitable alternatives. Most farmers fail to take the time to analyze the potential profitability that can come in low-reduced input agricultural concepts. This farm system concept promotes efficiently managed farm systems, the ability to reduce risk, and emphasizes the importance of selecting sustainable agricultural enterprises which can create cash flow throughout most of the year. Concepts in low/reduced input agriculture are issues that merit serious consideration by the majority of American farmers. However, the consequences of not dealing realistically with these issues may result in further depression in agriculture profitability.

Funds are required to provide clientele with full Extension expertise to develop and improve decision-making skills, better manage available resources and increase farm and family income. Thus 1890 Extension initiatives and efforts including base and targeted programs need to be increased and expanded as indicated below.

(Thousands of dollars)
1890 Colleges and Universities and Tuskegee University

Base funds FY 92	$ 27,000
Targeted Programs	5,000
TOTAL	$ 32,000

1890 RESEARCH DIRECTORS

STATEMENT DR. ALDEN H. REINE, RESEARCH DIRECTOR, COOPERATIVE AGRICULTURAL RESEARCH CENTER, PRAIRIE VIEW A&M UNIVERSITY

The Association of Research Directors (ARD), 1890 Universities and Tuskegee, strongly supports the total budget recommendations for Fiscal Year 1992 made by the Budget Committee, Division of Agriculture, NASULGC. Funding at the levels recommended will enable the U.S. land-grant system to respond to national agricultural research needs and priorities. However, we would like to comment on several budget items of more immediate interest to the community of 1890 Universities:

EVANS-ALLEN (1890) BASE PROGRAMS

We support the recommendation for an increase of 7.5 percent in base funds for research. The base research programs at the 1890 Land-Grant Institutions have grown considerably since 1972- the true beginning of significant agricultural research support at the 1890 institutions. The 1890 institutions have developed a multitude of research programs that respond to a variety of problems and opportunities in their respective states. In less than two decades, scientists at these colleges and universities annually report contributions in animal science, crop science, natural resources, human health and nutrition, and rural development. In addition to advancing basic scientific knowledge, agricultural research at the 1890 Universities provides new and increasing opportunities for scientific training and expands educational opportunities for a large number of minority students.

1890 CAPACITY BUILDING GRANTS PROGRAM

We support the committee recommendation for funding in 1992 at $ 11 million for this program. This new program serves as the crux of the Department of Agriculture's high priority initiative to advance the teaching and research capacities of the 1890 Land-Grant Institutions and Tuskegee University. One of the major objectives of this program is to encourage minorities to prepare for careers as food and agricultural scientists and professionals. The program is competitive in nature and provides support for teaching and research projects in targeted high priority areas.

In FY 1990, the first year of program funding, $ 5.5 million were appropriated. Of this amount, approximately $ 1.7 million were allocated to support teaching projects with the remainder ($ 3.6 million) allocated to research. One hundred and thirty proposals were received. Eighty-two were for research projects and requested $ 22,168,928 and forty-eight were for teaching projects and requested $ 7,741,565. Matching funds of almost $ 10 million were committed from state and private sources in these 130 proposals.

In FY 1991, $ 8.25 million were appropriated. Proposals were submitted to the Office of Higher Education Programs in the Cooperative State Research Service on or before February 4, 1991.

1890 STRENGTHENING GRANTS

We support the committee recommendation of $ 2 million for this program in FY 92. This program is now included under Base Programs for Higher Education Funds in the FY 92 NASULGC recommendations. The Strengthening Grants Program provides a stable funding base for such program areas as recruitment and retention, faculty development, curriculum development, library resources enhancement, and instructional equipment acquisition at the 1890 colleges and universities, Tuskegee University and the University of the District of Columbia.

The program has been supported at approximately $ 2 million annually since 1985.

We appreciate the opportunity to present these recommendations for your consideration. We thank the U.S. Congress, both House and Senate, for support of the agricultural teaching and research programs at the 1890 colleges and universities.

COMMISSION ON FORESTRY

STATEMENT OF DR. BART A. THIELGES, ASSOCIATE DEAN, COLLEGE OF FORESTRY, OREGON STATE UNIVERSITY

I am Bart A. Thielges, Associate Dean of the College of Forestry at Oregon State University. This testimony is offered in my capacity as Commission on Forestry representative on the NASULGC Division of Agriculture FY 1992 Budget Committee. The Commission represents the 62 universities that conduct this nation's programs of teaching, research and extension in forestry and natural resources. We appreciate the opportunity to comment on the FY 1992 budget and on three specific programs that are essential to this country's educational and research enterprise.

The first program is one that is particularly critical to our continuing ability to conduct research on existing and emerging forestry problems and to educate the scientists of tomorrow. I refer to the Cooperative Forestry Research Program, also known as the McIntire-Stennis program. This is the backbone of the federal portion of the federal-state partnership in forestry research.

The members of our Commission owe the Congress of the United States a great deal of thanks for its continuing support of this program. In FY 1988, the Administration recommended that the Cooperative Forestry Research Program be funded at the level of $12,975,000. The Congress was, at that time, keenly aware of the interest and the concerns of the American public about the health, vitality, productivity, and diversity of our valuable forest resources; concerns over wetlands, the need to maintain a healthy economic base, biological diversity, wilderness preservation, threatened and endangered plant and animal species, global warming, tropical deforestation, and many others.

In clear recognition of the need for a scientific basis to deal with these public concerns, the United States Congress that year appropriated $17,500,000, or $3.5 million more than the Administration request. This pattern has been repeated each year from 1988 to the present, and we greatly appreciate your interest, concern and actions. Here are but a few of the recent benefits the American taxpayer has received from your continuing support of the Cooperative Forestry Research Program.

Scientists at Mississippi State University have learned to effectively regenerate about 25 species of high value hardwoods at reasonable cost and in a manner that promotes biological diversity. Demand for these species as material for furniture, flooring and cabinetry is increasing rapidly, making this research supported by the Cooperative Forestry Research Program at Mississippi State particularly timely in helping to assure adequate hardwood resources for the future.

A problem faced by scientists working on the relationship between air pollution, plant mortality and loss of forest productivity is being able to simply and reliably identify and measure pollution-induced stress. Forest scientists at the University of Kentucky are developing a simple diagnostic measure to identify trees and forests that are under stress before visible symptoms appear.

Because of your continuing support, researchers in Maine helped improve the marketing of U.S. wood in Europe, holding out the hope that our producers will capture more value added from the manufacture of wood products.

Increased appropriations for the Cooperative Forestry Research Program to South Dakota have enabled the university to greatly expand its effort in genetic improvement. Results of this work will benefit the development and production of improved seedling tree stock for the entire state, where incorporation of trees and shrubs into farming practices is critical for the stabilization of agricultural production in the northern Great Plains.

These are just a few examples of the many benefits derived from the Cooperative Forestry Research Program. In addition, it is fair to say that the majority of the leading forest scientists in the United States--biotechnologists, soil scientists, entomologists, economists, ecologists, forest products specialists, wildlife biologists, and others--were able to pursue their graduate studies because of the support provided by this important program, since its inception in 1962.

Public concerns about our forest resources have not gone away over the past few years. Instead, they have become more sophisticated and they have intensified. It is thus important for our nation to continue to build an educational and scientific infrastructure that will respond to rapidly changing environmental and economic situations related to forest resources.

We are seeking your help in securing an appropriation for the Cooperative Forestry Research Program of $21,000,000 in the FY 1992 Budget for USDA/CSRS.

Another federal program that is extremely important to forest scientists is the competitive grants program funded under the National Research Initiative of the U.S. Department of Agriculture. Forest scientists are eligible for funding under several categories of that program. Funds from the National Research Initiative enable us to build upon the base provided by the Cooperative Forestry Research Program to address specific issues of particular scientific importance.

We recommend that the National Research Initiative be funded at the level of $200,000,000 in FY 1992.

Once again, the Administration did not recommend funding the Renewable Resources Extension Act (RREA). The activities supported by this important program enable our university personnel to assure that knowledge is available "on the ground" to encourage management of forests to maintain or enhance their health, vitality, productivity and diversity. Activities supported by funds from the Renewable Resources Extension Act enable forestry and wildlife schools and colleges to build upon the outstanding network of people and facilities that has been developed over the years by the Cooperative Extension Services in each state.

We recommend that the Renewable Resources Extension Act be funded at the level of $4,000,000 in FY 1992.

The National Research Council of the National Academy of Sciences completed a landmark study in 1990 which culminated in a report entitled FORESTRY RESEARCH: A MANDATE FOR CHANGE. This report makes a very strong case for the need to broaden the scope of forestry research and to significantly increase federal funding to support this research.

The Commission on Forestry's funding recommendations are consistent with those of the National Research Council, and are essential to maintaining this nation's scientific capability to improve the quality of our environment while also providing, on a sustainable basis, the raw materials for one of its most important manufacturing industries.

In summary, we urge your continued support of the Cooperative Forestry Research Program at $21,000,000; the National Research Initiative of the USDA at $200,000,000; and the Renewable Resources Extension Act at $4,000,000 in the USDA's budget for FY 1992.

Thank you for the opportunity to present this testimony.

COMMISSION ON HOME ECONOMICS

STATEMENT OF DR. MARY E. HELTSLEY, DEAN, COLLEGE OF HUMAN ECOLOGY, UNIVERSITY OF MINNESOTA

This testimony addresses the congressional appropriations for research in the experiment stations and outreach in the extension service related to two specific issues: social issues involving individuals and families, whether young or old; and, the nutritional needs of those individuals.

Our greatest social policy concerns in the beginning of the 21st Century are/will be youth, aging, drugs, homelessness, health care and AIDS. Social issues either emerge in urban and rural areas at the same time, or begin in urban areas and move to rural areas. For example, drug usage and AIDS were issues in urban areas and are of great concern in rural areas now, as well.

Youth At Risk has been identified as a major issue to be addressed by the Extension Service. Equally important is the need for a research base to support the programming efforts. Adult problems are youth problems: teenage pregnancy, prostitution, drug usage, and suicide. Youth literacy and increased diversity compounds issues in some areas of our country. Youth voluntarism, increased opportunities to enhance creativity, and empowerment in leadership have counteracted at-risk factors.

By 2010, 20% of our population will be over 65, an increase of approximately 8%, with a life expectancy of another 20 years or more. The high cost of health care, especially long term care for chronic diseases, is/will be a major concern for individuals and policymakers. The severe shortage of adequate health care in rural areas exacerbates the situation. Alternative delivery methods of health care in rural areas have been woefully neglected. Aging individuals in the 21st century, however, have more education, greater financial resources, better health, and desire to travel and keep active.

Much remains to be known about the connections between nutrition and health. Substantial evidence indicates that improper nutrition exacerbates many illnesses, and in some cases can lead to fatal diseases. Obesity, high fat and sodium diets, and the limited intake of fiber or calcium have been linked to major causes of illness/death in the U. S. The development of modified food products can result, such as the breeding of leaner animals. Increased knowledge about food toxins and processing provide for a safer food supply.

Poverty and homelessness in the U. S. are often linked. A larger number of families are low income female headed households. Preceding the 1990's recession, noticeable changes occurred in the increased number of women and children who were recipients of food and temporary shelter. Substandard or inadequate housing may be more characteristic of rural areas. Research, as well, in indoor environmental quality is a concern in homes and businesses.

Rural revitalization is essential to the agricultural enterprise. Environmental quality entices and maintains a healthy economic base. Individual and community leadership, developed to empower adults and youth to determine and change their destiny, fosters the spirit of innovation which is well known in the U. S.

EXPERIMENT STATION COMMITTEE ON ORGANIZATION AND POLICY

STATEMENT OF DR. VICTOR L. LECHTENBERG, EXECUTIVE ASSOCIATE DEAN OF AGRICULTURE, PURDUE UNIVERSITY

Mr. Chairman and Members of the Subcommittee, my name is Victor L. Lechtenberg. I represent the Agricultural Experiment Stations (ESCOP) on the 1992 Budget Committee of the Division of Agriculture, National Association of State Universities and Land-Grant Colleges. I appreciate this opportunity to offer comments in support of the Division's 1992 Budget recommendations. I specifically want to comment on funding for agricultural research and its importance in keeping U.S. agriculture technologically strong and competitive.

I would like to first thank the Committee and the Congress for their past support of agricultural research and educational programs over many years. The appropriations provided to State Agricultural Experiment Stations have helped create a system of research and technology development that is the envy of the world. We can all be proud of this system and its past accomplishments.

During the 1990s the U.S. agricultural and food system will confront new challenges from many sides. There is great concern about the impact of present production systems on the quality of our water and the environment. The safety of our food supply and the relationships between diet and health are frequently questioned. Both farmers and state governments are concerned about the viability of rural communities and the need to diversify their economic base. Producers of crops in surplus want new uses for their commodities. Farmers are concerned that we have lost our cost competitiveness in international markets. They ask why so few of our agricultural exports are in value-added form.

To meet these challenges and to assure that the U.S. agricultural and food system remains strong requires a healthy and productive agricultural research system. Two major elements are critical. First, an infrastructure consisting of facilities, laboratories, equipment, farms, and research scientists must be in place and well-maintained. Federal formula funds and state appropriations jointly provide this basic agricultural, food, and natural resources research infrastructure. The U.S. is falling behind other nations in agriculture research investment, and this is the basis for much of international competitiveness. Without adequate funding for this core program, the entire system is in jeopardy. We are recommending an increase of 7.5% in formula funding for 1992. This is of the highest priority.

The President has also proposed a new "facilities initiative" in the 1992 budget, of which we are highly supportive. This program would provide funding for modern, high priority facilities and equipment, on a matching basis.

The second critical element, if we are to have a healthy agricultural research system, is specific project funding for the supplies, technicians, students, etc. needed to make our agricultural scientists productive. Competitively awarded grants are most critical in this regard. Last year the Congress provided very important funding for the National Agricultural Research Initiative and for a number of critically important special grant programs.

We want to build on these programs in 1992 and are recommending funding for the National Agriculture Research Initiative at $200 million. This would permit funding of all six of the major research areas identified in the National Academy of Sciences' report "Investing in Research: A Proposal to Strengthen the Agricultural, Food and Environmental System." These include: Natural Resources and Environment; Nutrition, Food Quality and Health; Processes to Add Value or Develop New Products; Markets, Trade and Policy; Animal Systems; and Plant Systems. (Additional detail on the nature of the research in each of these areas is included in the Division of Agriculture 1992 budget report and the USDA Program Plan for the National Initiative for Research on Agriculture, Food and Environment.)

In addition to the National Initiative, we seek to expand the programs in Integrated Pest Management and Biocontrol, Pesticide Clearance, Animal Health, Alternative Agricultural Systems, and Water Quality and Management. All of these are important programs, funded with special grants, that address high priority national, regional, and state problems.

We also seek funds to start a Biofuels program aimed at finding ways to efficiently use agriculturally derived materials for fuels. We believe this is an untapped opportunity and that the recent course of world events suggests a need to become less dependent on foreign fuel sources.

The potential for basic research breakthroughs in the biological sciences and in engineering over the next decade provides tremendous opportunities to meet many of the challenges that we face in the 1990s. Shrinking Federal investments in recent years in agricultural, food, and natural resources research, however, have made it nearly impossible to capitalize on this tremendous potential and to apply breakthroughs in science and engineering to these important agricultural and natural resource problems. I believe the Congress took an important step in 1991 by increasing formula funding for agricultural research, which helps maintain the core programs and infrastructure, and by providing significant funding for the National Research Initiative.

I urge the members of this Subcommittee and the Congress to build upon this first step and to work to achieve the agricultural research funding levels proposed by the National Association of State Universities and Land-Grant Colleges. The future financial health of American agriculture and associated food and natural resource industries is absolutely dependent on research based technology. We cannot allow our technology to deteriorate. Our long-term agricultural sustainability and international competitiveness hang in the balance.

I appreciate the opportunity to present these thoughts and recommendations to you. Should you have questions, please feel free to call on me or any of my colleagues in the Agricultural Experiment Stations.

DIVISION OF AGRICULTURE

STATEMENT OF DR. ROGER L. MITCHELL, DEAN, COLLEGE OF AGRICULTURE, UNIVERSITY OF MISSOURI, COLUMBIA

Mr. Chairman, I am Roger L. Mitchell, Dean of the College of Agriculture, University of Missouri. I appreciate this opportunity to appear before your Committee as Chairman of the 1992 Budget Committee, Division of Agriculture of the National Association of State Universities and Land-Grant Colleges, and to present our recommendations for fiscal year 1992 federal funding for agricultural research, extension, higher education and international agriculture at land-grant universities.

Our funding recommendations have been established through an extensive, continuing process of consultation within the land-grant community, with governmental agencies and advisory groups, and with consumer and user organizations at state and local levels throughout the country. Thus, our recommendations represent a broad, national consensus on priorities and funding needed in fiscal year 1992.

THE SETTING OF AGRICULTURAL SCIENCE AND EDUCATION

American agriculture remains one of the most technologically advanced, efficient production systems in the world. Productivity, as conventionally measured, has advanced steadily throughout the post-World War II era. Agriculture has achieved this enviable position in major part as a result of three factors: 1) public and private investment in scientific research and development; 2) effective mechanisms for transfer of technology to managers operating in a competitive market environment; and 3) steady advances in the managerial skills of agricultural operators as a result of public investments in education.

In part because of the very successes of agriculture and the consequent abundance of relatively low cost of food and fiber in this country, continued productivity advances and agriculture's competitiveness in global markets are too frequently taken for granted. This attitude of complacency, if continued, could have serious long-term consequences for American agriculture and rural America.

It is well known that agricultural productivity gains in many other countries, particularly in the market-oriented industrialized and newly industrialized countries, have equaled or exceeded those in the United States in recent years. It is also well known that in many of these countries investments in agricultural R&D approach or exceed those of the United States relative to the size or value of agricultural production. The once-dominant position of the U.S. agricultural science establishment has eroded whether measured by R&D investment, by scientist years employed, or by scientific value of research output.

Coupled with these changes in the global setting of agriculture and agricultural science, the domestic setting of U.S. agriculture has been undergoing fundamental change in recent years. I refer here to the competitive pressure on natural resources used by agriculture. I refer particularly to public goals to maintain or enhance quality of the natural environment and to reduce risks to humans and other species from the presence of toxic material in the food supply and elsewhere in the environment.

Briefly stated, we have entered an era in which agriculture and agricultural productivity are to be assessed not just by physical input-output or traditional market values, but also by the environmental and natural resource consequences and costs of agricultural production.

It is my judgment that if we are to deal successfully with this twin set of forces—more intensive competition in world markets and development of economically feasible, more environmentally and natural resource-sensitive production systems—we must reverse soon the long-term erosion of agricultural science in the United States. To do so will require major new investments in science and education in the years immediately ahead.

Mr. Chairman, I would be remiss in my remarks if I failed to mention the human crisis in America which crosses all social, cultural, and economic barriers, and has pervaded our rural areas. The traditional family organization is vanishing and we need to alter our educational system, the marketplace and public services to address the needs of the increasing numbers of two-career or single-family households. A generation of our youth is "at risk" from widespread poverty, lack of family support and negative peer pressure. Our population is aging and we do not know how to care for, let alone capitalize on, its capabilities.

The land-grant system is addressing these critical social issues, but more resources and time are needed to have a serious impact. Our research base on youth, families and communities must be enhanced if we are to deliver the right kind of education and intervention programs and provide a sound basis for public policy and business strategy development. Our colleagues in Research and Extension will pursue these challenges through the decade of the nineties, and we respectfully ask the support of Congress in this mission.

FUNDING RECOMMENDATIONS

FISCAL YEAR 1992

THREE BASIC MISSIONS of benefit to all Americans undergird research, extension and higher education programs of the land-grant universities:

- The creation of knowledge through **research** in the fields of science related to agriculture, food, natural resources, the natural environment, people and communities.
- The adaption, dissemination and application through **extension** of that science-based knowledge.
- The development of human resources through **teaching and extension**, thereby strengthening the capability of the science and education system, people and communities to meet the needs of an ever-changing society.

THE MAJOR OBJECTIVE is to support the agricultural, food and environmental system of the United States so that it will be:

- Globally competitive
- Environmentally sustainable
- Enhancing of human potential

THE TWO TOP PRIORITIES, of equal importance and consistent with the above objective, are:

1. Strengthen Base Programs for Research, **Extension and Higher Education**

   An increase of 7.5 percent in base funds for research and extension is needed to offset anticipated inflation in Fiscal Year 1992 and to help rebuild capacity after a near 20-percent decline in real funding levels over the past 10 years. In addition, the 1992 Budget Committee recommends continued funding of the Morill-Nelson Act to support higher education.

   The erosion of base funds over the past decade impairs the ability of the system to meet critical state and national research and extension needs. Major redirection of these funds already has occurred at most land-grant universities. Costs of conducting science-based research and extension have escalated dramatically and will continue to do so in the foreseeable future.

   Reversal of the erosion in base funding is essential to maintain the basic infrastructure for research and extension. Without improvements in that infrastructure, the system will be unable to sustain core research and extension capabilities built over the past several decades. Without the flexibility provided by inflation-adjusted federal base funds and the substantial leveraging (three-to-five-fold) of state funds which accompanies base funds, the quantity, quality and responsiveness of research and extension programs will deteriorate steadily in the years ahead.

2. **Advance New Initiatives in Support of the Food, Agriculture and Environment System**

Major public investments are needed to assure the continuation of special on-going programs and the mounting of new initiatives. Supported to varying degrees by base funding, these programs enable the land-grant system to address an array of ever-changing, critical national problems.

Funding recommendations in millions of dollars are shown below for these special programs, which are categorized under seven broad areas of contemporary national concern:

	Actual 1991	Executive Request 1992	Recommended 1992
o **Develop Human Resources**	21.4	31.5	41.7
o **Preserve Natural Resources and the Environment**	56.1	78.3	165.4
o **Productivity and Sustainability of Plant Systems**	46.2	58.4	67.5
o **Productivity and Sustainability of Animal Systems**	24.2	30.4	42.5
o **Processes for Adding Value or Developing New Products**	0	4.0	20.0
o **Nutrition, Food Quality and Health**	71.6	73.6	104.4
o **Competitiveness and Revitalization of Rural America**	4.6	2.0	31.3

Some specific recommendations for special initiatives we consider of high priority for Fiscal 1992 are:

- To increase the **National Research Initiative** Competitive Research Grants Program ($200 million).
- To fund key **Water Quality** initiatives in Extension ($22.5 million) and Research ($15 million).
- To build coordinated **Pest Control** Strategies of Integrated Pest Management and Biocontrol in Extension ($15.8 million) and Research ($16.8 million).
- To **internationalize** Research, Extension and Teaching ($9 million).
- To advance **Competitive Graduate Fellowships** ($7 million), **Minority Scholarships** ($2 million), and **Institution Challenge** Grants to ($3 million).
- To **support 1890 Institutions** with Capacity Building Grants ($11 million).
- To fund **Food Safety and Quality** Extension efforts ($7.5 million); Research ($25 million).

- To advance Youth at Risk Extension support ($20 million).
- To fund Biofuels Research ($10 million).
- To fund the Agricultural Telecommunications Network (AG*SAT) ($2 million).

Finally, Mr. Chairman, I have attached a series of tables depicting our recommendations in terms of budget authority with comparisons to the 1991 appropriations and Fiscal Year 1992 recommendations in the President's budget.

Mr. Chairman, we respectfully submit this statement for the record. We thank you again for this opportunity to discuss our needs with you. We welcome your comments and questions.

APPENDIX

TO

DR. ROGER L. MITCHELL'S

STATEMENT

[CLERK'S NOTE.--The following is the entire report for the fiscal year 1992 budget by the National Association of State Universities and Land-Grant Colleges. The tables referred to in Dr. Mitchell's statement are included in this report.]

A report to support strategic investments for the Agricultural Research, Extension and Higher Education Budget for Fiscal Year '92

Fiscal 1992 Budget Committee
Division of Agriculture

EXECUTIVE SUMMARY

For Fiscal Year 1992, the Budget Committee of the NASULGC Division of Agriculture recommends investments to support the U.S. Food, Agriculture and Environment System so that it will continue to be:

- GLOBALLY COMPETITIVE
- ENVIRONMENTALLY SUSTAINABLE
- ENHANCING OF HUMAN POTENTIAL

Priorities include:

I. STRENGTHENING BASE PROGRAMS

Base Programs in research, extension and higher education provide the infrastructure support, the long-term programming and the site- and situation-specific work to sustain the economic and environmental viability of the food and agriculture system and support targeted programs of the 1890 institutions. ***A 7.5% Base Increase is needed -- 5.5% to Retain Purchasing Power; 2.0% to Rebuild Capacity.***

II. ADVANCING NEW INITIATIVES

- To increase the ***National Research Initiative*** Competitive Research Grants Program ($200 million)
- To fund key ***Water Quality*** initiatives in Extension ($22.5 million) and Research ($15 million)
- To build coordinated ***Pest Control Strategies*** of Integrated Pest Management and Biocontrol in Extension ($15.8 million) and Research ($16.8 million)
- To ***internationalize*** Research, Extension and Teaching ($11 million)
- To advance Competitive ***Graduate Fellowships*** ($7 million), ***Minority Scholarships*** ($2 million), and ***Institution Challenge*** Grants ($3 million)
- To support ***1890 Institutions*** with Capacity Building Grants ($11 million)
- To fund ***Food Safety and Quality*** efforts in Extension ($7.5 million) and Research ($25 million)
- To advance ***Youth at Risk*** Extension support ($20 million)
- To fund ***Biofuels*** Research ($10 million)

These missions, goals and priorities fully complement the five priorities developed by the Joint Council on Food and Agricultural Sciences for Fiscal Year 1992:

- Compatibility and sustainability of agriculture and the environment
- Global competitiveness and expansion of agricultural markets
- Abundant, affordable, safe and nutritious food for optimal health
- Scientific and professional expertise in the food and agricultural sciences
- Social stability and changing values in America

FOREWORD*

This report presents recommendations for Fiscal 1992 federal funding to enable the U.S. land-grant system to achieve its mandates and fulfill its responsibilities in serving the nation through programs in agricultural research, extension and higher education. The recommendations are related specifically to programs in food, agriculture, natural resources, environment and rural and community development supported with funds administered to the states through the Cooperative State Research Service (CSRS), the Extension Service (ES), and the Higher Education Office of the U.S. Department of Agriculture (USDA). In addition, recommendations are included for international agriculture programs in CSRS, ES and Higher Education.

The recommendations were established through a process of consultation based on long-term planning by the respective budget committees of the five major units of the Division of Agriculture of the National Association of State Universities and Land-Grant Colleges (NASULGC):

- Experiment Station Section (ESS), represented by the Experiment Station Committee on Organization and Policy (ESCOP)
- Cooperative Extension Section (CES), represented by the Extension Committee on Organization and Policy (ECOP)
- Resident Instruction Section (RIS), represented by the Resident Instruction Committee on Organization and Policy (RICOP)
- International Agriculture Section (IAS), represented by the International Committee on Organization and Policy (ICOP)
- Council of Administrative Heads of Agriculture (CAHA)

All relevant elements of the land-grant community, governmental agencies and advisory groups**, and national consumer and user organizations were consulted regarding needs and priorities. Local and state representatives of the many constituencies served by the land-grant system were also consulted. This assured input from and visibility of local and state program development processes and their impact on assessing needs and setting national priorities.

Agricultural research, extension and higher education expenditures are national investments that afford every U.S. citizen significant returns in the form of affordable and abundant supplies of safe, high-quality food and fiber, enhanced environmental quality, improved health and a better quality of life. The 1992 Budget Committee recognizes the need to control federal spending, but the committee also realizes that the future health and competitiveness of the nation's agriculture and rural communities cannot be compromised. The committee's recommendations address near-term priorities but recognize that the support needed for some programs will have to be achieved in phases that stretch beyond 1992.

FUNDING RECOMMENDATIONS

FISCAL YEAR 1992

THREE BASIC MISSIONS of benefit to all Americans undergird research, extension and higher education programs of the land-grant universities:

- The creation of knowledge through **research** in the fields of science related to agriculture, food, natural resources, the natural environment, people and communities.
- The adaption, dissemination and application through **extension** of that science-based knowledge.
- The development of human resources through **teaching and extension,** thereby strengthening the capability of the science and education system, and of people and communities to meet the needs of an ever-changing society.

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*To assist readers unfamiliar with some of the terms, names of organizations, and acronyms used in this report, a glossary of brief explanations is provided in Appendix I.

**Two important groups are the Joint Council on Food and Agricultural Sciences and the Users Advisory Board.

THE MAJOR OBJECTIVE is to have an agricultural, food and environmental system in the United States that is:

- **Globally competitive**
- **Environmentally sustainable**
- **Enhancing of human potential**

THE TWO TOP PRIORITIES, of equal importance and consistent with the above objective, are:

1. Strengthen Base Programs for Research, Extension and Higher Education

An increase of 7.5 percent in base funds for research and extension is needed to offset anticipated inflation in Fiscal Year 1992 and to help rebuild capacity after a near 20 percent decline in real funding levels over the past 10 years. In addition, the 1992 Budget Committee recommends continued funding of the Morill-Nelson Act to support higher eductaion.

Erosion of base funds over the past decade impairs the ability of the system to meet critical state and national research and extension needs. Major redirection of these funds already has occurred at most land-grant universities. Many universities have been forced to reduce their faculty and extension staff at a time when the need for science-based research and extension have escalated dramatically.

Reversal of the erosion in base funding is essential to maintain the basic infrastructure for research and extension. Without improvements in that infrastructure, the system will be unable to sustain core research and extension capabilities built over the past several decades. Without the federal base funds and the substantial leveraging (three-to-five-fold) of state funds which accompanies base funds, the quantity, quality and responsiveness of research and extension programs at land-grant universities will deteriorate steadily in the years ahead.

2. Advance Special Initiatives in Support of the Food, Agriculture and Environment System

Major public investments are needed to assure the continuation of **successful and high priority on-going** programs and to mount **new initiatives**. Supported to varying degrees by base funding, these programs enable the land-grant system to address an array of ever-changing, critical national problems.

These special programs can be categorized under seven broad areas of contemporary national concern:

- **Develop Human Resources**
- **Preserve Natural Resources and the Environment**
- **Productivity and Sustainability of Plant Systems**
- **Productivity and Sustainability of Animal Systems**
- **Processes for Adding Value and Developing New Products**
- **Nutrition, Food Quality and Health**
- **Competitiveness and Revitalization of Rural America**

The following table shows current Special Program funding and recommendations for 1992 in each of these seven program areas. This funding is in addition to base program funds.

Tables I-V show: the Fiscal 1991 Appropriations, the Fiscal 1992 Executive Request and the Fiscal 1992 Budget Committee's recommendations by specific authority for all funding sources, including base funds.

Current Investments and Recommended Appropriations for Research, Extension and Higher Education In Seven Major Program Areas of National Concern

(Thousands of Dollars)

Develop Human Resources

	Higher Education			Extension		
	1991	1992 Exec	1992 NASULGC	1991	1992 Exec	1992 NASULGC
• 1890 capacity building	6,250	11,000	11,000			
• Graduate fellowships	3,500	4,000	7,000			
• Challenge grants	1,500	1,500	3,000			
• Youth-at-risk				7,500	15,000	20,000
• Pacific rim				647		650
• Minority scholars			2,000			
• International education			2,250			

Preserve Natural Resources and the Environment

	Research			Extension		
	1991	1992 Exec	1992 NASULGC	1991	1992 Exec	1992 NASULGC
• Develop new knowledge (NRI)[a]	14,000	23,000	50,000			
✓ *protect and improve water resources*						
✓ *impacts of environmental change*						
✓ *natural resource productivity*						
✓ *multiple uses for land and water*						
• Water quality/management (regional programs)	8,000	10,000	15,000	10,375	15,500	22,500
• Pest strategies						
✓ *integrated pest management and biocontrol*	4,000	5,000	7,500	7,450	10,000	12,250
✓ *pesticide impact assessment*	2,968	2,968	3,265	3,230	3,580	3,580
✓ *pesticide clearance*	3,000	3,000	6,000			
• Natural resources						
✓ *global change monitoring*		5,000	5,000			
✓ *renewable resources*				2,765		4,000
✓ *biological impact assessment*	300	300	330			
• Waste management						5,000

Productivity and Sustainability of Plant Systems

• Develop new knowledge (NRI)[a]	35,000	53,000	56,000			
✓ *management of pests*						
✓ *genetic diversity*						
✓ *production systems and ecosystems*						
✓ *understanding plant development*						
✓ *energy and metabolism*						
• Sustainable systems	6,725	4,450	6,725			5,000
• Tropical and subtropical	3,320		3,629			
• Alternative crops	1,168	918	1,168			

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[a] National Research Initiative

	Research			Extension		
	1991	1992 Exec	1992 NASULGC	1991	1992 Exec	1992 NASULGC
Productivity and Sustainability of Animal Systems						
• **Develop new knowledge (NRI)[a]** ✓ *cellular growth and composition* ✓ *molecular basis of disease* ✓ *improve production and production systems* ✓ *molecular genetics* ✓ *enhance reproductive performance*	20,000	30,000	38,000			
• **Aquaculture centers**	3,750		4,073			
• **Minor use drugs**	450	429	450			
Processes for Adding Value and Developing New Products						
• **Develop new technology (NRI)[a]** ✓ *sensory and quality attributes* ✓ *physical properties* ✓ *packaging and distribution* ✓ *sensor technology* ✓ *bioengineering food and forest products* ✓ *bioprocessing* ✓ *biotechnology to improve processing*		4,000	20,000			
• **Biofuels**			10,000			
Nutrition, Food Quality and Health						
• **Develop new knowledge (NRI)[a]** ✓ *ensure food safety* ✓ *improve health through nutrition* ✓ *analytical methods* ✓ *molecular basis of nutrition* ✓ *dietary patterns and behavior*	4,000	13,000	25,000			
• **Expanded Food and Nutrition Education Program (EFNEP)**				60,525	58,635	65,064
• **Food safety and quality**				1,500	2,000	7,500
• **Urban gardening**				3,557		3,824
• **Farm safety**				1,970		2,970
Competitiveness and Revitalization of Rural America						
• **Develop understanding (NRI)[a]** ✓ *understanding markets and trade* ✓ *enhance rural development* ✓ *improve economic performance* ✓ *evaluate new technologies* ✓ *stability and well-being of families* ✓ *evaluate education policies for agriculture*		2,000	11,000			
• **Rural development centers**	500		550	950		950
• **Revitalizing rural America**						5,000
• **International trade centers**	3,152		3,152			
• **International research**			3,375			
• **International extension**						2,250
• **Integrated management systems**						5,000

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[a] National Research Initiative

TABLE I

SUMMARY OF FUNDING RECOMMENDATIONS FOR RESEARCH, EXTENSION, HIGHER EDUCATION AND INTERNATIONAL AGRICULTURE

(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
BASE PROGRAMS			
Research	212,010	208,594	229,754
Extension	276,393	290,100	304,619
Higher Education	2,850	0	4,850
Total Base Programs	**491,253**	**498,694**	**539,223**
SPECIAL PROGRAMS			
Research			
Competitive Grants	73,000	125,000	200,000
Special Grants (2c)	23,194	26,697	58,380
Special Problem Grants (Regional & State)	38,782	0	38,782
Other Research Programs	16,070	5,368	15,593
Agricultural Research Facilities	0	25,000	25,000
Total Special Research Programs	**151,046**	**182,065**	**337,755**
Extension			
National Priorities	19,375	32,500	70,000
Specified Programs	94,650	81,723	105,294
Total Special Extension Programs	**114,025**	**114,223**	**175,294**
Higher Education			
Total Higher Education Special Programs	**15,250**	**16,500**	**25,000**
International Agriculture			
Total International Agriculture Special Programs	**0**	**0**	**11,000**
FEDERAL ADMINISTRATION			
Net Federal Administration, Research	9,683	1,992	1,992
Net Federal Administration, Extension	8,060	6,494	6,494
Total Net Federal Administration	**17,743**	**8,486**	**8,486**
SUMMARY			
Total Research	372,739	392,651	569,501
Total Extension	398,478	410,817	486,407
Total Higher Education	18,100	16,500	29,850
Total International Agriculture	0	0	11,000
GRAND TOTAL	**789,317**	**819,968**	**1,096,758**

TABLE II

RESEARCH FUNDS

(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
BASE PROGRAMS			
Hatch Act (24)[a]	162,293	168,298	174,465
McIntire-Stennis Act (24)	17,820	12,975	21,000
Evans-Allen (1890) (24)	26,346	27,321	28,322
Animal Health (Section 1433) (24)	5,551	0	5,967
TOTAL BASE PROGRAMS, RESEARCH	**212,010**	**208,594**	**229,754**

TABLE II
RESEARCH FUNDS (continued)
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
RESEARCH GRANTS P.L. 89-106			
Competitive Grants (Sec. 2b) (NRI)			
Natural Resources & Environment (25)	14,000	23,000	50,000
Nutrition, Food Quality & Health (25&34)	4,000	13,000	25,000
Plant Systems (25)	35,000	53,000	56,000
Animal Systems (25)	20,000	30,000	38,000
Processes for Adding Value/Developing New Products (25)	0	4,000	20,000
Markets, Trade & Policy (26)	0	2,000	11,000
TOTAL COMPETITIVE GRANTS	**73,000**	**125,000**	**200,000**
Special Grants (sec. 2c)			
National Programs			
Animal Health (26)[a]	0	0	6,000
Aquaculture Research General (26)	656	0	656
Biofuels (26)	0	0	10,000
Pest Control Strategies			
Integrated Pest Management (32)	4,000	5,000	7,500
Pesticide Clearance (26)	3,000	3,000	6,000
Pesticide Impact Assessment (33)	2,968	2,968	3,265
Minor Use Animal Drugs (27)	450	429	450
Biological Impact Assessment (27)	300	300	330
Rural Development Centers (34)	500	0	550
Tropical & Subtropical Agriculture (27)	3,320	0	3,629
Water Quality & Management (32)	8,000	10,000	15,000
Global Change Monitoring (27)	b	5,000	5,000
SUBTOTAL NATIONAL SPECIAL GRANTS (sec. 2c)	23,194	26,697	58,380
SUBTOTAL REGIONAL SPECIAL GRANTS	14,667	0	14,667
SUBTOTAL STATE SPECIAL PROBLEM GRANTS (27)	24,115	0	24,115
TOTAL SPECIAL GRANTS	**61,976**	**26,697**	**97,162**
GRAND TOTAL RESEARCH GRANTS	**134,976**	**151,697**	**297,162**
OTHER RESEARCH PROGRAMS			
Rangeland (P.L. 95-113) (27)[a]	475	0	475
Aquaculture Centers (P.L. 95-113) (27)	3,750	0	4,073
Supplemental & Alternative Crops (P.L. 95-113) (27)	1,168	918	1,168
International Trade Development Centers (28)[b]	3,152	0	3,152
Critical Materials (P.L. 98-284) (28)	800	0	0
Sustainable Agriculture (P.L. 99-198) (33)[c]	6,725	4,450	6,725
TOTAL OTHER RESEARCH PROGRAMS	**16,070**	**5,368**	**15,593**
FEDERAL ADMINISTRATION, DIRECT (28)	17,933	12,992	12,992
1890 Capacity Building Grants (37)[d]	(8,250)	(11,000)	(11,000)
NET FEDERAL ADMINISTRATION	**9,683**	**1,992**	**1,992**

TABLE II
RESEARCH FUNDS (continued)
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
AGRICULTURAL RESEARCH FACILITIES GRANTS PROGRAM (P.L. 88-74) (28)	0	25,000	25,000
GRAND TOTAL RESEARCH	**372,739**	**392,651**	**569,501**

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[a] Indicates page number for program description.
[b] Any funding increases should be awarded competitively.
[c] Cooperative program with Extension.
[d] See Higher Education, Table IV.

TABLE III
EXTENSION FUNDS
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
BASE PROGRAMS			
Smith-Lever 3b and 3c (28)[a]	252,608	262,100	271,554
D. C. Extension (28)	991	1,000	1,065
1890 Colleges & Tuskegee University (28)	22,794	27,000	27,000
Special Targeted Programs (29)			
Teen Pregnancy/Health (29)	0	0	2,000
Sustainable Agriculture/Small Scale Farmers (29)	0	0	3,000
TOTAL BASE PROGRAMS, EXTENSION	**276,393**	**290,100**	**304,619**
NATIONAL EXTENSION PRIORITIES			
Water Quality & Management (32)	10,375	15,500	22,500
Food Safety & Quality (34)	1,500	2,000	7,500
Revitalizing Rural America (29)	0	0	5,000
Integrated Management Systems (30)	0	0	5,000
Sustainable Agriculture (33)[b]	0	0	5,000
Youth-at-Risk (30)	7,500	15,000	20,000
Waste Management (30)	0	0	5,000
TOTAL NATIONAL EXTENSION PRIORITIES	**19,375**	**32,500**	**70,000**
SPECIFIED PROGRAMS			
Expanded Food & Nutri. Ed. Pr. (EFNEP) (30)[a]	60,525	58,635	65,064
Integrated Pest Management (32)	7,450	10,000	12,250
Pesticide Impact Assessment (33)	3,230	3,580	3,580
Urban Gardening (30)	3,557	0	3,824
Farm Safety (31)	1,970	0	2,970
Rural Development Centers (34)	950	0	950

TABLE III
EXTENSION FUNDS (continued)
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
Reservation Extension Agents (31)	1,000	0	2,000
1890 Extension Facilities (31)	9,508	9,508	9,508
Renewable Resources Extension Act (31)	2,765	0	4,000
Pacific Rim Project (31)	647	0	650
Crop Simulation (31)	498	0	498
Farmer Assistance Grants (31)	2,550	0	0
TOTAL SPECIFIED PROGRAMS	**94,650**	**81,723**	**105,294**
FEDERAL ADMINISTRATION, DIRECT (31)	9,205	6,494	6,494
Pacific Rim Project (31)	(647)[b]	0	0
Crop Simulation (31)	(498)[b]	0	0
NET FEDERAL ADMINISTRATION	**8,060**[c]	**6,494**	**6,494**
GRAND TOTAL EXTENSION	**398,478**	**410,817**	**486,407**

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[a] Indicates page number for program description.

[b] These requests are included above in Specified Programs, whereas in the ES budget request they are under Federal Administration, Direct.

[c] This figure includes $2,879 for Special Projects and $5,181 for General Administration.

TABLE IV
HIGHER EDUCATION FUNDS
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
BASE PROGRAMS			
Morrill-Nelson Act (35)[a]	2,850	0	2,850
1890 Strengthening Grants (35)[b]	(2,000)[b]	0	2,000[b]
TOTAL BASE PROGRAMS, HIGHER EDUCATION	**2,850**	**0**	**4,850**
OTHER PROGRAMS			
Expertise Development Initiatives (35)			
Graduate Training Fellowships (35)	3,500	4,000	7,000
Minority Scholars Program (36)	0	0	2,000
Institution Capacity Building Initiatives (36)			
Institution Challenge Grants (36)	1,500	1,500	3,000
1890 Capacity Building Grants (37)[c]	8,250	11,000	11,000
1890 Strengthening Grants (35)[b]	2,000	0	b
Agricultural Satellite Corporation (AG*SAT) (37)	0	0	2,000
TOTAL OTHER PROGRAMS	**15,250**	**16,500**	**25,000**
GRAND TOTAL HIGHER EDUCATION	**18,100**	**16,500**	**29,850**

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[a] Indicates page number for program description.

[b] 1890 Strengthening Grants were listed under Other Programs in FY91. This line is now included under Base Programs in FY92 NASULGC Recommendations.

[c] Funded under Federal Administration, Research.

TABLE V
INTERNATIONAL AGRICULTURE PROGRAMS
OFFICE OF SCIENCE AND EDUCATION (S&E)[a]
(Thousands of dollars)

	FY91 Appropriations	FY92 Executive Request	FY92 NASULGC Recommendations
Research (CSRS) (38)[b]	0	0	3,375
Extension (ES) (38)	0	0	2,250
Office of Higher Education (39)	0	0	2,250
National Ag Library (NAL) (39)	0	0	1,125
Agricultural Research Service (ARS) (38)	0	0	2,000
TOTAL INTERNATIONAL PROGRAMS-OFFICE OF SCIENCE AND EDUCATION	0	0	11,000

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[a] Requested under the authorization specified in Section 1458 of the 1985 Farm Bill, as amended in Section 1613 of the 1990 Farm Bill.

[b] Indicates page number for program description.

APPENDIX I

A Glossary of Terms for The Land-Grant System and Related Organizations

Land-Grant System—a term used to describe the set of U.S. state and territorial institutions of higher learning which receive federal support for integrated programs of agricultural teaching, research and extension. Five important Acts of Congress undergird this national system and the resultant State/Federal partnership for conducting these activities:

- *The Justin Morrill Land-Grant Act of 1862* which provided federal support in the form of a grant of federal lands to any state or territory which agreed to establish a public institution for the teaching of agriculture and the mechanical arts. These are referred to as the "1862 land-grant institutions".
- *The Justin Morrill Land-Grant Act of 1890* which provided for federal support for the establishment of institutions, primarily for agricultural education of Blacks, in the then segregated southern states. These are referred to as the "1890 land-grant institutions".
- *The Hatch Act of 1887* which authorized federal support for agricultural research at the state and territorial levels and the establishment of an Agricultural Experiment Station associated with each U.S. land-grant college. Hatch funds are administered by the Cooperative State Research Service (CSRS) of the U.S. Department of Agriculture.
- *The Smith-Lever Act of 1914* which authorized federal support at the state and territorial levels for extension services, established a Cooperative Extension Service associated with each U.S. land-grant college. Smith-Lever funds are administered by the Extension Service (ES) of the U.S. Department of Agriculture. The Cooperative Extension System serves both rural and urban populations throughout the nation.
- *The Morrill-Nelson Act* is a permanent appropriation which provides general support to land-grant institutions for faculty salaries, curricula development and other instructional operating expenses related to food and agricultural sciences. All such programs at land-grant institutions are eligible for this support including agriculture and natural resources, home economics, forestry and veterinary medicine.

NASULGC (National Association of State Universities and Land-Grant Colleges)—a higher education association whose membership comprises 148 major U.S. public research universities, including all U.S. land-grant institutions. The Association has four *Divisions*: Agriculture, Marine, Urban Affairs and International Affairs. In addition, there are seven *Councils* representing major areas of university life and service—Academic Affairs; Business Affairs; University Relations and Development; Extension, Continuing Education and Public Service; Student Affairs; Research Policy and Graduate Education; and Presidents and Spouses—and seven *Commissions* dealing with specific areas of academic or professional education—Arts, Arts and Sciences, Education for the Engineering Professions, Forestry, Home Economics, Veterinary Medicine and Education for the Teaching Professions.

- **NASULGC Division of Agriculture**—a major component of NASULGC; its membership comprises all 1862 and 1890 land-grant colleges of agriculture plus Tuskegee University, Texas Tech University and Southern Illinois University. The Division has the following units:
  - *CAHA (Council of Administrative Heads of Agriculture)*—members are the chief administrators of the member colleges of agriculture.
  - *ESS (Experiment Station Section)*— members are the administrators of the experiment stations of all the states and territories.
    - *ESCOP (Experiment Station Committee on Organization and Policy)*—the representative governing body of the Experiment Station Section.
  - *CES (Cooperative Extension Section)*—members are the designated administrators of the cooperative extension services of all the states and territories.
    - *ECOP (Extension Committee on Organization and Policy)*—the representative governing body of the Cooperative Extension Section.
  - *RIS (Resident Instruction Section)*—members are the designated administrators of resident instruction programs at the colleges of agriculture of all the states and territories.
    - *RICOP (Resident Instruction Committee on Organization and Policy)*—the representative governing body of the Resident Instruction Section.
  - *IAS (International Agriculture Section)*—members are the designated administrators of international agriculture programs at the colleges of agriculture of all the states and territories.
    - *ICOP (International Committee on Organization and Policy)*—the representative governing body of the International Agriculture Section.
  - *CARET (Council for Agricultural Research, Extension and Teaching)*—a national grassroots organization of lay persons from the constituencies served by the land-grant colleges of agriculture. Each state and territory has up to three CARET members designated by and working closely with their respective land-grant college to offer guidance and support for programs in agricultural research, extension and teaching.
  - *ARD (The Association of Research Directors)*—the agricultural sciences research arm of the 1890 land-grant institutions and Tuskegee University. This body coordinates research program planning and budgeting with ESCOP and USDA and cooperates with national bodies in developing and monitoring legislation affecting these institutions.
  - *Association of 1890 Extension Administrators*—membership includes the designated administrators for cooperative extension at the 1890 land-grant institutions and Tuskegee University. The representative governing body is an executive committee composed of the elected officers of the Association plus the 1890 representatives serving on ECOP and the ECOP budget committee.
- *Commission on Home Economics*—a free standing unit of NASULGC which represents the administrators of colleges of home economics at NASULGC-member institutions, and provides a link with the Association of Administrators of Home Economics (AAHE, a national professional association).
- *Commission on Forestry* —a free standing unit of NASULGC which represents the administrators of the colleges of forestry at NASULGC-member institutions, and provides a link with the National Association of Professional Forestry Schools and Colleges (NAPFSC).
- *Commission on Veterinary Medicine*—a free standing unit of NASULGC which represents the administrators of the colleges of veterinary medicine at NASULGC-member institutions, and provides a link with the American Association of Veterinary Medical Colleges (AAVMC).

State/Federal Partnership—a term referring to the close collaboration of the *land-grant system* with the relevant units of the *Science and Education Administration of the U.S. Department of Agriculture* which administer key programs supported by federal funds at land-grant institutions.

Federal Base Funds—a critical element of the State/Federal partnership, these funds are matched by state funds to maintain a strong, responsive infrastructure at the state level for agricultural research, extension and teaching.

The Joint Council on Food and Agricultural Sciences was established by Congress in 1977 to encourage and coordinate research, extension and higher education activities in the food and agricultural sciences throughout the United States. Its members, who are from both the public and private sectors, represent producers, industry, and state and federal agencies and institutions. The Council's role is to plan and coordinate research, extension and higher education within both the public and private sectors and relate the federal budgeting process to the overall functioning of the system. All major units of the NASULGC Division of Agriculture are represented through voting membership on the Council; Home Economics, Forestry and Veterinary Medicine are represented as well. The Council is co-chaired by a representative of the land-grant system and the Assistant Secretary of Agriculture for Science and Education.

UAB (National Agricultural Research and Extension Users Advisory Board) is a statutory committee established by Congress in the National Agricultural Research, Extension and Teaching Policy Act (Farm Bill) of 1977, as revised by the Agriculture and Food Act of 1981 and the Food Security Act of 1985. The Board represents only the private sector and its members reflect the multiple interests of the users of the national agricultural science and education system. The Board has the general responsibility for preparing independent advisory opinions on the food and agricultural sciences. It reports annually to the President and Congress.

APPENDIX II

Program Descriptions

RESEARCH PROGRAMS

I. Base Programs.

Four acts authorize appropriations distributed to state agricultural experiment stations or other cooperating state institutions to conduct research. These funds represent the federal portion of the long-term state/federal partnership that help provide continuing programs of research in support of the agricultural sector of each state and territory. Funds are used in many ways, including salaries and operating expenses for research scientists and student assistants, helping assure a stable resource base, with the flexibility necessary to respond to changing needs and priorities.

Hatch Act. This legislation provides funds for and mandates that the state agricultural experiment stations conduct research that contributes to an effective U.S. agricultural industry, improved rural home and rural life, and enhanced consumer welfare, with due regard for varying state conditions and needs. Some matching funds are required.

Hatch funds support broad research programs at each agricultural experiment station in the 50 states and territories. A special Regional Research Fund included in the Hatch fund enables regional and national collaboration and coordination among scientists, thereby avoiding duplication, through more than 400 regional projects.

McIntire-Stennis Act. This act authorizes the Secretary of Agriculture to cooperate with states and assist them in carrying out forestry research programs. Funds support research in state forestry schools and state agricultural experiment stations. Some matching state funds are required. This program is authorized at 50% of the USDA Forest Service research budget. Currently, funding is at about 12%. The near-term annual funding target figure is $25 million by 1993.

Evans-Allen Program. This program provides the principal support for agricultural research at 1890 land-grant institutions and Tuskegee University equal to at least 15 percent of Hatch Act appropriations. Matching funds are not required.

Animal Health (Section 1433). This program supports animal health research in colleges of veterinary medicine and state agricultural experiment stations. It helps maintain animal health research capabilities in participating states allowing them to address state and regional problems in addition to national issues. Some matching funds from the participating states are required. Animal health research contributes to animal welfare by decreasing animal illness and suffering, as well as reducing the economic impact of disease.

II. Research Grants, P.L. 89-106.

Competitive Grants (Section 2b). These grants support high-priority research in food, agriculture and related areas, targeted primarily on national priorities.

In FY 1991, all P.L. 89-106 competitive grants were incorporated within the National Research Initiative for Agriculture, Food and Environment (NRI). This is a major new program started in 1991 in the Cooperative State Research Service to revitalize and strengthen research in the broad areas of agriculture, food and environment. The initiative was proposed in October, 1989, by the Board on Agriculture of the National Research Council in its report: "Investing in Research — a Proposal to Strengthen the Agricultural, Food and Environmental System". Under the NRI, research grants are awarded on a merit-reviewed, competitive basis.

Annual budget increments are proposed in forthcoming years to the extent that funds are awarded competitively and not earmarked for special interest purposes. The annual funding target is $500 million.

The NRI has six major topical areas, each with several sub-program areas:

- ✓ Natural Resources and Environment
  - Protect and improve water quality and quantity
  - Understanding the impacts of environmental change
  - Improve natural resource productivity
  - Improve multiple use strategies for soils, land and water
- ✓ Nutrition, Food Quality and Health
  - Ensure food safety
  - Improve human health through proper nutrition
  - Analytical methods for nutrient, toxicant and bioactive agents in food
  - Molecular and cellular basis of human nutrition
  - Dietary patterns and behavior of the food consumer
- ✓ Plant Systems
  - Management of plant pests
  - Understanding genomes, genetics and diversity
  - Plant production systems and ecosystems
  - Understanding plant development
  - Energy and metabolism
- ✓ Animal Systems
  - Understanding cellular growth and animal product composition
  - Cellular and molecular basis of disease
  - Improve animal production and production systems
  - Molecular genetics
  - Enhance reproductive performance
- ✓ Processes for Adding Value and Developing New Products
  - Sensory and quality attributes of consumer products
  - Physical properties of food and biomaterials
  - Packaging and distribution methods
  - Sensor technology
  - Bioengineering of foods and forest products
  - Bioprocessing of foods, feeds and fiber
  - Biotechnology to improve processing of foods, feed and fiber
- ✓ Markets, Trade and Policy
  - Understanding markets and trade
  - Enhance rural development
  - Improve economic performance
  - Evaluate impacts of new agricultural technologies
  - Stability and well-being of families, youth and elderly
  - Evaluate education policy for agriculture and rural society

Special Grants (Section 2c, P.L. 89-106). These grants are to facilitate or expand promising breakthroughs in important areas of food and agricultural sciences. To qualify for these grants, university units must demonstrate strong research capacity in food and agricultural sciences. Many grants are awarded competitively.

National Programs

Several important programs are joint with Extension and are described in a special section on Joint Research/Extension Programs (page 32):

- *Integrated Pest Management*
- *Pesticide Impact Assessment*
- *Water Quality and Management*
- *Sustainable Agriculture*
- *Rural Development Centers*

Animal Health. This program will support research which identifies health and production-limiting conditions of food animals and integrates new developments from basic research with applications to disease control, production efficiency and international trade. This involves the application of newer technologies to disease diagnosis, surveillance and control in order to enhance production practices, on-farm food safety and international marketing opportunities.

Aquaculture Research General. This research seeks to solve problems of nutrition, breeding, physiology, management, disease and parasite control that constrain economic growth of the aquaculture industry. Nearly all aquacultural research in the public agricultural research system is conducted by agricultural experiment stations.

Biofuels. This program will accelerate the development of technologies to produce cost-competitive biofuels from agricultural and forestry crops, wastes, residues and by-products. The goals are: to reduce dependence on imported oil, to enhance rural and agricultural viability through development of a biofuels industry, and to mitigate the adverse impacts of environmental and global changes caused by greenhouse gases.

The research program will focus on: increased productivity of feedstocks, improved conversion and extraction processes, technology to modify chemical and physical properties of the biofuel, quantification of engine performance including emissions, and the development of new uses for the co-products.

Pesticide Clearance (IR-4). Pesticides and biological control agents--likely to be useful for small acreage (i.e., fruits, vegetables) or specialty crops--often are not registered for such use by manufacturers. State agricultural experiment stations develop data on their efficacy and safety, and ascertain residue tolerance levels in treated foods and feeds to satisfy federal registration requirements so that these pesticides and control agents are usable. Regional analytical chemical laboratories and organizational centers in experiment stations in California, Florida, New York and Michigan form the regional framework. A national headquarters at the New Jersey experiment station provides liaison with federal regulatory agencies, industries developing pesticides and other land-grant universities. The eventual annual target figure for funding is $12 million.

Minor Use Animal Drugs. This research seeks to develop data required, but not available from drug companies, to obtain U.S. Food and Drug Administration clearance for animal drugs intended for minor uses and minor species. It operates within the national and regional structure developed for minor use pesticide clearance.

Biological Impact Assessment. This program facilitates biosafety information exchange, monitoring techniques and research to assist in the safe testing and commercial use of biotechnology-modified organisms in agriculture. The information exchange network consists of a series of data bases on topics such as sites, scientists, organisms and literature to support safe biotechnology research.

The U.S. Environmental Protection Agency reviews uses of many important older agricultural chemicals. Numerous assessment teams, comprising several hundred scientists, are involved. Most pesticide experts are in state units. Experiment station scientists provide continuing research on crop loss, including yield, quality and efficacy, application technology, pest resistance to chemical controls, human exposure, the environmental fate of pesticides and the potential for residues in food-processing animals.

Tropical and Subtropical Agriculture. This research seeks to improve agriculture in the tropical and subtropical regions of the United States. Research is planned and coordinated through the Pacific

and the Caribbean Basin Advisory Groups. Research grants address crop and animal productivity and protection, land and water resources and post-harvest physiology and storage of crops.

Global Change Monitoring. **This research program will improve the knowledge about emissions from agriculture production systems, particularly methane and carbon dioxide. Monitoring technologies will be developed and will focus on measuring the amount of UV-Beta radiation and its potential for influencing biological activity. Initial research will provide data for regional scale models capable of providing a better understanding of potential climate changes and the related response of forest ecosystems and small scale watersheds.**

Special Problem Grants

Special problem grants are established by the Congress to address priority situations both on a regional basis and in specific states.

Other Special Topic Grants

P.L. 95-113

Rangeland. Grants support research on rangelands and rangeland watersheds and on revegetation and rehabilitation of rangeland.

Aquaculture Centers. Regional Aquaculture Centers have been established to provide for research, development and demonstration projects appropriate to each region.

Supplementary and Alternative Crops. Research and pilot projects on supplemental and alternative crops—such as oilseeds, crambe and winter rapeseed—are supported.

International Trade Development Centers. This program encourages land-grant institutions to establish centers to develop long-range multidisciplinary research, teaching, extension, data services and promotional efforts to enhance the export of U.S. agricultural commodities and related products. The program complements federal trade expansion efforts. Matching funds are required. Ten centers have been established; eight are at land-grant institutions.

P.L. 98-284

Critical Materials. Certain strategic and critical materials are deficient or insufficiently developed to supply U.S. military, industrial and essential civilian needs for national defense. Grants support research on materials such as guayule, a rubber substitute.

III. Federal Administration.

These funds support activities related to the Cooperative State Research Service's administrative responsibilities.

IV. Agricultural Research Facilities.

Agricultural Research Facilities Grants Program. This program will be implemented under the authority of the Research Facilities Act of 1963, as amended (P.L. 88-74), and will be administered by CSRS. The statute authorizes a competitive program to assist eligible institutions in the construction, acquisition and remodeling of buildings, laboratories and other capital facilities to more effectively conduct research in agriculture and related sciences by means of matching federal grants. State agricultural experiment stations, colleges of veterinary medicine, schools of forestry and the 1890 land-grant institutions and Tuskegee University are eligible to compete for these funds. Matching of federal funds with non-federal funds will be required.

EXTENSION PROGRAMS

I. Base Programs.

Smith-Lever 3b and 3c Funds. Appropriations under this authorization are used to maintain core programming capacity by supporting base level Extension staff and contemporary information technology in each of the states and territories. Matching funds from state and county sources are required. These funds ensure the availability of Extension expertise to respond to critical concerns and issues -- national, state and local.

D.C. Extension. Educational efforts appropriate to the urban nature of the District of Columbia are supported as legislatively prescribed. The needs of low-income and minority clientele are a special priority. Included are programs to improve nutrition, diet and health, enhance family economic well-being, and help youth develop into productive citizens.

1890 Colleges and Tuskegee University. 1890 institutions and Tuskegee University continue to serve a vital role as members of the Cooperative Extension System. The funds assure maintaining needed base programs and quality staff that allow the institutions to place particular attention on high priority emerging issues. These institutions also provide an educational pathway for many people who are at risk or are out of the mainstream of society.

> **Special Targeted Programs for 1890 Colleges and Tuskegee University.** Certain essential and very critical needs are apparent across the nation upon which the 1890 institutions and Tuskegee University have focused specifically as special targeted programs. Five million dollars are included in the FY 1992 NASULGC recommendations for support of two such programs:
>
> ***Teen-age Pregnancy and Health**. In 1985 an estimated $16.7 billion were spent on aid for dependent children, food stamps and Medicaid for families affected by birth to a teenager. Known strategies can be implemented to reduce the monetary and human costs.*
>
> *Surveys of food attitudes of adolescents have revealed that they are very weight conscious, have unrealistic views about their body images, and have poor eating habits characterized by skipping meals and snacking. Education and support programs can be implemented to help them adopt sound eating habits and healthy life styles.*
>
> *The economic costs of alcohol and drug abuse are more than four times that of cancer and nearly three times greater than for cardiovascular disease. Education and support programs that help individuals cope with economic, social and psychological stress will help reduce these dependencies.*
>
> ***Sustainable Agriculture/Small-Scale Farmers.** Most small farmers are producing only one or two major commodities, without choosing among sufficient and profitable alternatives. According to the 1982 Census of Agriculture, approximately 12% of all small farmers have a gross income of less than $20,000 per year. Most farmers fail to take the time to analyze the potential profitability that can come in low/reduced input agricultural concepts. This farm system concept promotes efficiently managed farm systems, the ability to reduce risk and emphasizes the importance of selecting sustainable agricultural enterprises which can create cash flow throughout most of the year. Concepts in low/reduced input agriculture are issues that merit serious consideration by the majority of American farmers. However, the consequences of not dealing realistically with these issues may result in further depression in agriculture profitability.*

II. National Extension Priorities.

Three high priority programs in this category are joint with Research and are described in a special section on Joint Research/Extension Programs (page 32):

- *Water Quality and Management*
- *Food Safety and Quality*
- *Sustainable Agriculture*

Revitalizing Rural America. This initiative recognizes that expanded educational support to rural leaders is the most feasible and cost effective way to revitalize rural America. The effort is multidimensional requiring management and marketing education, increased emphasis on the retention and expansion of existing business, assistance in devising new institutional arrangements to meet family and community needs, and techniques to increase and develop the leadership pool. A wide variety of audiences are, and would be, involved -- business owners and operators, local community leaders, local and state government officials and others.

Integrated Management Systems. **Section 1627, Chapter II, Subtitle XVI, of the Food, Agriculture, Conservation, and Trade Act of 1990 authorizes appropriations to support educational programs to develop and disseminate information on integrated crop and livestock management systems that optimize production within the context of future farm policy, environmental stewardship, consumer preferences and food safety and quality. The systems developed will include market considerations, recognize the importance of globalization and developing technologies, and facilitate the adoption of whole-farm integrated management systems through demonstration projects.**

Youth-at-Risk. **Land-grant universities have had a long-standing commitment to the development of youth. The Cooperative Extension System currently reaches and serves 4.5 million youth through 4-H and other educational efforts with youth and families.**

With additional funds provided by Congress in FY 1991 the Cooperative Extension System is implementing community based educational programs for youth, parents and local leaders. Communities with serious risk factors such as poverty, high incidence of drug use, teen pregnancy and welfare dependence are the focus of these comprehensive prevention and intervention programs for youth and families. Additional funds are recommended to increase the number of communities served.

Waste Management. The myriad problems of solid waste disposal have revealed the inadequacy of ad-hoc approaches to a critical environmental concern. Concerted educational efforts must be made to achieve those levels of the understanding necessary to effect a reduction in the amount of material for which disposal is required, to encourage recycling and composting and to facilitate community organization and effective management of landfills.

III. Specified Extension Programs.

Three high priority programs in this category are joint with Research and are described in a special section on Joint Research/Extension Programs (page 32):

- *Integrated Pest Management*
- *Pesticide Impact Assessment*
- *Rural Development Centers*

Expanded Food and Nutrition Education Program (EFNEP). EFNEP provides low-income families knowledge and skills to achieve a nutritious diet. The program is targeted toward low-income homemakers living in rural and urban areas. Emphasis is on households with young children. The EFNEP youth component focuses on youngsters from low-income families primarily in urban areas. New initiatives targeted to young expectant or new mothers in low-income situations reflect the urgency of reducing infant mortality in such high risk groups.

Urban Gardening. This program teaches urban youth and adults to grow their own fresh fruits and vegetables. Participants improve their health and well-being, as well as develop a degree of self-reliance and satisfaction. Community development and improvement are enhanced through increased cooperation and local involvement, often transforming unsightly yards and vacant lots into productive fruit, vegetable and flower gardens. Gardening activities also provide participants with a source of recreation and exercise.

Farm Safety. Extension programs in each state focus on those aspects of farm safety appropriate, and in some cases unique, to the location. The array of risks has expanded significantly in recent years. In addition to focusing on the reduction of injuries and deaths resulting from historically common causes such as farm equipment accidents, fires, falls, and livestock, extension education programs are being expanded to address safety and health risks associated with the handling and application of agricultural chemicals, prolonged exposure to dust, high levels of noise and other stresses.

Reservation Extension Agents. Section 1677 of Title XVI of the Food, Agriculture, Conservation, and Trade Act of 1990 authorizes funds to establish appropriate extension education programs on Indian reservations and tribal jurisdictions. Appropriation of resources is recommended to permit implementation of this Section.

1890 Extension Facilities. **Institutions eligible under the 1890 Morrill Land-Grant Act will be assisted in the acquisition and improvement of extension facilities and equipment. This will allow them to participate fully in the State Cooperative Extension Services in a balanced way to meet the needs of people in their states. This annual $10 million authorization, initiated in fiscal 1988, is proposed to continue through fiscal 1992.**

This appropriation will be made available for grants to eligible institutions to assist in the purchase of equipment and land and the planning, construction, alteration, or renovation of buildings to provide adequate facilities to conduct extension educational programs.

Renewable Resources Extension Act (RREA). States use these funds to provide programs of technology education to help owners and managers protect, regenerate and improve the productive potential of privately owned forests and rangelands.

Pacific Rim Project. The Agricultural Development in the American Pacific (ADAP) Project is focused on supporting three basic efforts between and among four Pacific territories and the state of Hawaii. Those efforts address unique communication problems associated with widely dispersed populations, the upgrading of staff qualifications and the sharing of staff between and among institutions.

Crop Simulation. This pilot project is developing and testing computer models and management systems which move research findings into farm applications. Models in operation as of this date help cotton producers make decisions concerning irrigation, fertilizer rates and timing of applications, and timing of application of harvest aids.

Farmer Assistance Grants. Initially appropriated and identified as Section 1140 funds, these grants continue to support programs to aid financially distressed and dislocated farmers in eight states: Iowa, Kansas, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma and Vermont.

IV. Federal Administration.

These funds support administrative and programmatic activities incumbent to the Extension Service within the U.S. Department of Agriculture.

JOINT RESEARCH--EXTENSION PROGRAMS

This section describes several high priority program areas in which there is significant collaboration between Research and Extension.

Water Quality and Management. This is a priority national initiative that requires the Cooperative Extension System and the State Agricultural Experiment Stations to work closely in developing alternatives which address major concerns relating to water quality and management.

> **Research** examines the roles of forestry and agriculture as suppliers, users, polluters and recyclers of surface and groundwater. Reclamation of contaminated aquifers and prevention of additional contamination are important goals.
>
> **Extension**, using information generated through research, concentrates on educational efforts concerning production and management options undergirded by a complete understanding of the interaction of soils, pesticides, nutrients and animal wastes and their attendant effects on surface and groundwater quality. The additional resources appropriated over the past three years have been used to increase educational efforts in 74 hydrologic units and 16 demonstration sites in support of a coordinated multi-agency effort at the national level.

A special concern of these joint Research/Extension efforts is the safety of drinking water on the farm and in the rural community.

Pest Control Strategies. Pest control programs include three major budgetary elements: Integrated Pest Management, Pesticide Impact Assessment and Pesticide Clearance. Research and Extension collaborate in two of these areas:

1. Integrated Pest Management (IPM). The aim of this program is to develop cultural, biological and pesticide management practices to increase production efficiency of crops and livestock while minimizing environmental risks.

Research is supported which integrates new knowledge into practical management systems. The program addresses local and regional pest concerns in each of the four experiment station regions, as a part of a national IPM program.

Extension, through its IPM program, assimilates and integrates research-based technologies into pest management systems. State specialists and field staff work with farmers and a wide variety of firms and organizations in both the private and public sectors to facilitate adaptation and implementation of systems approaches to insect, weed and disease management.

The adoption of more cost-effective and environmentally sound methods of pest management are extremely important in achieving water quality goals and maintaining a competitive edge for U.S. agriculture. Private consultants and agricultural chemical companies also use technology delivered through IPM programs. Urban interest groups--such as homeowners, food processors, grounds managers and institutional managers--who share concerns about pesticide residues are embracing IPM as an ecologically balanced and healthful system of pest control.

2. Pesticide Impact Assessment. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and, among others, the Endangered Species Act, require that all pesticides be reviewed and environmental impacts considered, weighing the need for essential pest control. The two federal agencies responsible for implementing these laws are the Environmental Protection Agency and the Department of Agriculture.

Research will develop information that will promote informed regulatory decisions on registered pesticides that significantly benefit U.S. agriculture without causing unreasonable adverse effects to human health or the environment.

Extension participates in fulfilling the Federal mandate by collecting data and disseminating research-based information to producers and consumers at the state and local levels.

These Research and Extension efforts are part of the U.S. Department of Agriculture's continuing responsibility for managing and coordinating USDA/state (land-grant university and state regulatory agency) activities.

Sustainable Agriculture. To be truly sustainable, alternative agriculture systems must be economically competitive on a global basis, conserving of natural resources and environmentally sound. Research and Extension are committed to the goal of providing educational support for American agriculture to make it both competitive and sustainable.

Research investigates appropriate technologies for integration into total agricultural management systems to promote profitability and minimize hazards to the environment. Appropriate biological and mechanical methods of pest control are tested and evaluated as substitutes for chemical methods. Products emerging from biotechnology research and development will increasingly enhance the program's major emphasis. More rapid discovery of plants with specific targeted pest control defenses and safer, less persistent chemicals offer exciting opportunities.

Extension is heavily involved in the initiation, adaptation and dissemination of information about, scientifically tested management practices and systems that are both environmentally sound and economically feasible. Additional resources are needed to support further education and training of Extension staff and further integration of existing knowledge into profitable and sustainable systems.

1890 Extension will direct its sustainable agriculture programs at limited resource farmers with small land holdings, and will work closely with farming systems researchers at 1890 institutions. This 1890 Extension program is described in more detail on page 29.

Food Safety and Quality. Food safety problems over the past decade have increased the need for extensive research, educational and informational assistance that: (1) help define and offer solutions to specific problems; (2) enable producers to operate within approved usage levels of animal drugs and pesticides; and, (3) assist food processors, food service establishments and consumers in understanding food handling practices.

Research will conduct a program under the National Research Initiative (NRI) to improve analytical methods for determining more accurately chemical and biological toxicants and microbiological contamination factors of foods.

Extension education programs currently target critical audiences across the complete span of the food chain. Key among them are consumers, processors, food handlers and producers. The focus of educational efforts is to protect the safety of food throughout the chain. Additional resources are recommended to enhance those efforts.

The primary objective of Research and Extension in the Food Safety and Quality program is to ensure a safe and nutritious food supply for the consumption of all Americans and for export.

Rural Development Centers. There are four regional Rural Development Centers in the land-grant system jointly funded by CSRS and ES/USDA. Serving regional and multi-state needs, the centers' programs address a wide variety of interests related to developing and revitalizing rural communities. The centers promote an interface between Research and Extension efforts across state and regional boundaries.

Research, through the jointly sponsored Rural Development Centers, provides leadership and limited funding for various economic and social research projects intended to improve rural communities and rural life. Such research projects often result from feedback on problems identified by rural leaders through extension and/or research personnel.

Extension, through the four centers and a fifth center at North Dakota State University, works closely with research to identify and address problems of developing and revitalizing rural communities. Recently much effort has been devoted to ameliorating the rural crisis through efforts to develop rural leadership, strengthen community organizations, improve public infrastructure and spur economic opportunities.

Collectively and individually, the Research and Extension Rural Development Centers provide vital programmatic support for rural economic development and rural revitalization. They represent an important example of Research/Extension collaboration at the state and regional levels.

HIGHER EDUCATION PROGRAMS

I. Base Programs.

Morrill-Nelson Act. This is a permanent appropriation which provides general support to land-grant institutions for faculty salaries, curricula development and other instructional operating expenses related to food and agricultural sciences. All such programs at land-grant institutions are eligible for this support including agriculture and natural resources, home economics, forestry and veterinary medicine.

1890 Strengthening Grants. This program is administered by the Cooperative State Research Service and provides for formula grants to the 1890 colleges and universities, Tuskegee University and the University of the District of Columbia to strengthen programs of instruction in food and agriculture. Since these institutions provide a major proportion of minority graduates, funding will continue to increase the cultural diversity of scientists and professionals in the field of food, agriculture and related sciences.

II. Other Higher Education Programs.

Expertise Development Initiatives

Competitive Graduate Training Fellowships. Without competitive graduate training grants, the adequate development of agricultural professionals for the next generation will be extremely difficult. Attracting the best and brightest scholars can rationally -- and profitably -- be considered our most important investment, not an expense.

It is demonstrable that agricultural science has improved our quality of life for decades. But it is equally clear that without adequate funding, those gains could be in serious jeopardy.

Between 1978 and 1990, enrollment at agricultural colleges nationwide suffered a sharp decline. Not only that, student quality in some cases was less than desirable. And with that there was a drop in graduate enrollment.

Though recent trends in colleges of agriculture have been encouraging, both in SAT/GRE scores and in numbers enrolled, the reversals of the Eighties delivered a devastating blow.

Graduate fellowships constitute a vital part of the continuing effort to overcome the decline. The truth is that colleges of agriculture remain at a severe competitive disadvantage for attracting graduate students. A steady increase in funding will help, but without a dramatic attempt to reverse this trend, the results could be serious for the future progress of agricultural science in America.

These grants will be made available to all colleges and universities with demonstrated excellence in food, agriculture and natural resources. Funding at a level of $7 million will support the recruiting and support of about 130 doctoral students for a three-year period. These students will be U.S. citizens.

Minority Scholars Program. The need for minority involvement in the agricultural sciences is of paramount importance as we face the 21st Century. Without the rich cultural diversity these students can offer, agriculture will surely not live up to its potential.

Even more, it seems clear that minority students have a tremendous sociological perspective to offer in all areas of agriculture. The discipline desperately needs that expertise and perspective to address problems that are already global and will grow more so in the next few decades.

It is known that minority students have high dropout rates, low college and graduate school enrollment and low completion rates. Because participation of minority students from the United States in agriculture has traditionally been low, an aggressive recruitment campaign should be undertaken. These students can be made aware of the opportunities and given a chance, through competitive scholarships, to become involved in these opportunities.

Resident instruction programs have a clear mandate to attract top minority students. This program should complement, not compete with, the teaching programs of the 1890 Land-Grant institutions across the country. Only a true partnership can be fruitful both for the future of agriculture and our obvious responsibilities toward minority students.

Institution Capacity Building Initiatives

Institutional Challenge Grants. The decline in numbers of graduates from U.S. colleges of agriculture over the pest fifteen years has not fully been recognized for the serious problem it truly is. During the same period, agriculture itself has gone through profound changes. Countries that once imported a large part of their foodstuffs are now self-sufficient and even competing with the U.S. in the export market.

That agriculture is a global pursuit is now obvious. What is less obvious is that the United States may pay a heavy price for the problems it suffered in agriculture during the Eighties. Qualified agricultural scientists are in short supply. But the problem even runs deeper than that.

The entire agricultural infrastructure was shaken to its core during this period. Old alliances broke up, new ones were formed, and the power behind agricultural policy began to shift from the farmer to the consumer. As Congressional redistricting takes away even more rural representation, agriculture faces challenges that cry out for the help of our brightest and best-trained men and women.

This initiative can achieve many goals, among which are recruitment of excellent students; enrichment of undergraduate science; improvement of faculty; and the stimulation of new approaches to curricula.

Institutional challenge grants can also be used to help rectify the troubling lack of women and minority students enrolling in colleges of agriculture. Female enrollment at the undergraduate level has increased over the years, but women in agricultural graduate programs are few indeed.

Without a program to address these needs, the consequences in the next century will be alarming.

1890 Institution Capacity Building Grants. Perhaps never before in our history have we had such an urgent need for qualified minority graduates of colleges of agriculture. Aside from the simple justice involved, many 1890 institutions face serious problems themselves. On many campuses, buildings are outdated. And instructional programs clearly need additional support in virtually every area.

Economists predict that by the turn of the century, some 85 percent of new entrants into the work force will be women and members of minority groups. For this reason alone, resident instruction programs for 1890 colleges absolutely must be supported far better than they are now.

But even more, the potential value to the food and fiber systems of graduates from these institutions is beyond measure. Strengthening the capacity grants for these institutions is vital.

The Capacity Building Grants Program represents a unique and promising opportunity for the 1890 Land-Grant Universities to significantly improve both teaching and research programs in the agricultural sciences. This program provides much needed resources to strengthen and broaden academic programs and establish new areas and/or centers of excellence in both teaching and research at the 1890 Universities. In FY 1990, there were 130 proposals submitted of which 45 were teaching and 85 research.

*Agricultural Satellite Corporation (AG*SAT).* Advances in telecommunications have opened new opportunities for addressing the rapidly changing needs of U.S. agriculture. Many land-grant institutions with strong agricultural programs are currently members of a non-profit agricultural educational satellite corporation AG*SAT which was formed in 1989. The system provides new and expanded opportunities for academic, extension, research and international programs in agriculture. This nationally coordinated network permits programs to be initiated at strategically located uplink sites with delivery potential to any location with suitable downlinks. With limited resources available and the need for greater specialization, this coordinated system offers the opportunity to effectively utilize the best talent available to offer courses, participate in teleconferences and share in research discussions on national and international bases. Program enhancement funds would be used to support the development and delivery of high quality priority programs offered through AG*SAT.

Participating institutions receive matching fund support from the U.S. Department of Commerce to enhance their uplink and downlink capabilities. They have established the network operational headquarters at the University of Nebraska.

INTERNATIONAL AGRICULTURE PROGRAMS

International Agriculture Program Initiative (IAPI): Assuring Competitiveness of U.S. Agriculture. **This is a major new initiative under the Assistant Secretary for Science and Education, USDA, to promote increased international agricultural research, extension and higher education programs in the vested interest of United States agriculture.**

The future prosperity of United States agriculture in the New World Order depends directly upon U.S. ability to tap into research and information on state-of-the-art profitable technologies being conducted outside this country, to promote the use of those new technologies by U.S. producers and to produce graduates of higher education institutions with the expertise to compete internationally.

Through this initiative, the Division of Agriculture seeks an appropriation to carry out the mandate of the 1990 Farm Bill, Section 1613. The Farm Bill authorizes the Secretary of Agriculture to strengthen the international capacity of state universities and land-grant colleges by providing support: (1) to do collaborative research with other countries on issues relevant to United States agricultural competitiveness; (2) for cooperative extension education in global agriculture and to promote the application of new technology developed in foreign countries to United States agriculture; and, (3) for internationalizing college and university resident instruction programs in the interest of United States agriculture and the national economy.

The Division of Agriculture Budget Committee recommends $11 million to begin this program in FY 1992 (CSRS--$3.375 million; CES--$2.25 million; Higher Education--$2.25 million; National Ag Library--$1.125 million; ARS--$2 million). Resources would be distributed to states on a competitive basis, with the 1890 colleges and Tuskegee University receiving 10 percent of these grants. Details of the initiative are shown below:

Research. Collaborative international agricultural research will link U.S. researchers with colleagues abroad who are conducting state-of-the-art research that has direct relevance to the competitiveness of U.S. agriculture in world markets. Strengthening the capacity of state universities and land-grant colleges and the U.S. Department of Agriculture (CSRS and ARS) to do international research could initially include: (1) USDA "buy-ins" (in topical areas clearly in U.S. self-interest) to U.S. Agency for International Development programs such as Collaborative Research Support Programs; (2) greater collaboration with International Agricultural Research Centers to bring new technologies back to the U.S.; and, (3) grants to U.S. agricultural scientists in problem areas relevant to the international competitiveness of U.S. agriculture.

Extension. The U.S. Cooperative Extension System helps link the global marketplace to U.S. agriculture. Strengthening CES in international agriculture will include programs which: (1) increase profits of U.S. producers, processors, distributors, and agribusiness firms by increasing involvement in export markets; (2) promote the application of new technologies developed abroad to U.S. agriculture; (3) expand bilateral agricultural technical assistance that is in the long-term interest of U.S. agriculture; and, (4) increase understanding by Americans of the relationship between international development and the welfare of U.S. agriculture.

Higher Education. The competitiveness of U.S. agriculture will depend upon graduates capable of competing internationally. Internationalizing higher education programs of state universities and land-grant colleges will require support to: (1) develop or expand curricula on global agriculture and add global dimensions to domestically-oriented core curricula; (2) support first-professional experiences in foreign agriculture for faculty; (3) support international agricultural internships for U.S. students completing advanced degrees in the food and agricultural sciences; and, (4) support U.S. Ph.D. students in the agricultural sciences doing internationally related studies.

National Agricultural Library. Access to global information will allow U.S. agricultural scientists to keep apprised of the continuing internationalization of scientific and technical information. Resources are required to expand: (1) publications exchange programs to acquire, catalog and translate global literature of greatest relevance to U.S. agricultural competitiveness; (2) international networks for the electronic transmission of information; and, (3) the capacity of the Agricultural Trade and Marketing Information Center and other centers to enhance access to information resources.

APPENDIX III

FISCAL 1992
BUDGET COMMITTEE

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EXTENSION COMMITTEE ON ORGANIZATION AND POLICY

STATEMENT OF DR. HENRY A. WADSWORTH, DIRECTOR, COOPERATIVE EXTENSION SERVICE, PURDUE UNIVERSITY

My name is Henry A. Wadsworth. I am Director of the Purdue University Cooperative Extension Service located at West Lafayette, Indiana. Today I am representing the Extension Committee on Organization and Policy as chair of its FY92 Budget Committee. My purpose in being here is to present to you the FY92 budget request on behalf of the 1862 and 1890 Land Grant University partners in the Cooperative Extension System.

The Cooperative Extension System was established by the passage of the Smith Lever Act of 1914. This farsighted piece of legislation recognized that in order to attain the full benefits of research and information generated at our Land Grant Universities such knowledge must be made available to and understood by all who might use it, particularly those unable to enroll in an academic program on a college campus. "Taking the University to the People"1/ was envisioned as a shared commitment of federal, state and local governments whereby they would support the conduct of practical and useful educational programs in the communities where people lived, worked and raised their families.

This concept of "Taking the University to the People" is as viable today as in 1914. The ability to effectively participate in society, to make informed well chosen decisions on matters of importance affecting economic well being or family development is largely determined by what one understands about how various elements of society function and how to adjust to impending changes in economic, social and environmental conditions. In comparison to 1914, the dynamics are incredible. Scientific discovery doubles knowledge available every 10 to 15 years and the pace is increasing. Realization of a world economy, development of a new world order and increasing concern about environmental tradeoffs characterize changes that will have pervasive impacts. Continued informed decision making can only occur if one is involved in a lifelong informal educational effort. The Cooperative Extension System has the capacity and is positioned to provide such educational opportunities.

ES-USDA FY92 Budget Recommendations
National Association of State Universities and Land-Grant Colleges (NASULGC)

	FY91 Appropriation	FY92 Executive Request	FY91 NASULGC Recommendation
Base Programs	$276,393,000	$290,100,000	$304,619,000
National Priorities	19,375,000	32,500,000	70,000,000
Specified Programs	94,650,000	81,723,000	105,294,000
Federal Administration	8,060,000	6,494,000	6,494,000
Total	$398,478,000	$410,817,000	$486,407,000

BASE PROGRAMS

One of the unique strengths of the Cooperative Extension System is the shared programmatic and financial commitment of federal, state and local governments. Maintaining that strength requires each partner to provide resources adequate to support their relative share of core program resources.

Smith-Lever 3b and 3c Funds. Our recommendation is an increase of 7.5 percent over FY91, 5.5 percent to retain purchasing power and 2.0 percent to rebuild

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1/ Rasmussen, Wayne D., "Taking the University to the People, Seventy-five Years of Cooperative Extension:, Iowa State University Press, Ames, Iowa, 1989.

capacity. Appropriations under this authorization are used to maintain core programming capacity by supporting base level Extension staff and contemporary information technology in each of the states and territories. Matching funds from state and county sources are required. These funds ensure the availability of Extension expertise to respond to critical concerns and issues -- national, state and local.

D.C. Extension. Our recommendation is an increase of 7.5 percent over FY91, 5.5 percent to retain purchasing power and 2.0 percent to rebuild capacity. Educational efforts appropriate to the urban nature of the District of Columbia are supported as legislatively prescribed. The needs of low-income and minority clientele are a special priority. Included are programs to improve nutrition, diet and health, enhance family economic well-being, and help youth develop into productive citizens.

1890 Colleges and Tuskegee University. Our recommendation is an increase of 18.5 percent over FY91 for these institutions who depend almost entirely upon federal funds. These funds assure maintaining needed base programs and quality staff with some provision for strengthening their ability to place particular attention on high priority emerging issues. In addition, our recommendations include support for two specially targeted programs, $2 M for Teenage Pregnancy and Health and $3 M for Sustainable Agriculture/Small Scale Farmers.

NATIONAL PRIORITIES

Three high priority programs have been initiated in recent years with support of the Congress. Our request is to substantially expand our initial efforts so that the programs might be more truly national in scope. The programs are:

- *Water Quality and Management*
- *Youth at Risk*
- *Food Safety and Quality*

Water Quality and Management. This is a priority national initiative that requires the Cooperative Extension System to work closely with the State Agricultural Experiment Stations in developing production and management options which address major concerns relating to water quality and management. Resources appropriated over the past three years have been used to increase educational efforts in 74 hydrologic units and 16 demonstration sites in support of a coordinated multi-agency effort at the national level. Much remains to be done and we are recommending $22.5 M in FY92 so that educational efforts can keep pace with other elements of the USDA Water Quality Plan.

Youth-at-Risk. With the first $7.5 M provided by Congress in FY 1991, the Cooperative Extension System initiated efforts to implement community based educational programs for youth, parents and local leaders. Communities with serious risk factors such as poverty, high incidence of drug use, teen pregnancy and welfare dependence are the focus of these comprehensive prevention and intervention programs for youth and families. We believe this priority to be of such critical importance that our recommendation is for $20 M in FY92 so that we might achieve the fast track dimensions of this program as contained in our original proposal.

Food Safety and Quality. Food safety problems over the past decade have increased the need for extensive research, educational and informational assistance. Extension education programs currently target critical audiences key among them are consumers, processors, food handlers and producers. The focus of educational efforts is to protect the safety of food across the complete span of the food chain. The initial FY91 appropriation of $1.5 M supported a limited pilot effort. For the program to become national in scope, our recommendation is for $7.5 M in FY92.

Four other problems are of such significance that they are national priorities for educational efforts by the Cooperative Extension System. Our recommendation is that each be funded at $5.0 M, a minimal amount for any program to achieve national scope. The priorities for new funding are:

- * *Revitalizing Rural American*
- * *Integrated Management Systems*
- * *Sustainable Agriculture*
- * *Waste Management.*

Revitalizing Rural America. This initiative recognizes that expanded educational support to rural leaders is the most feasible and cost effective way to revitalize rural America. The effort is multidimensional requiring management and marketing education, increased emphasis on the retention and expansion of existing business, assistance in devising new institutional arrangements to meet family and community needs, and extension educational efforts of the nature authorized in the 1990 Farm Bill.

Integrated Management Systems. Section 1627, Chapter II, Subtitle XVI, of the Food, Agriculture, Conservation, and Trade Act of 1990 authorizes appropriations to support educational programs to develop and disseminate information on integrated crop and livestock management systems that optimize production within the context of future farm policy, environmental stewardship, consumer preferences and food safety and quality. The systems developed will include market considerations, recognize the importance of globalization and developing technologies, and facilitate the adoption of whole-farm integrated management systems through demonstration projects.

Sustainable Agriculture. Extension is heavily involved in the initiation, adaptation and dissemination of information about scientifically tested management practices and systems that are both environmentally sound and economically feasible. Additional resources are needed to support further education and training of Extension staff and further integration of existing knowledge into profitable and sustainable systems as called for in Section 1627, Chapter III, Subtitle XVI of the 1990 Farm Bill.

Waste Management. The myriad problems of solid waste disposal have revealed the inadequacy of ad-hoc approaches to a critical environmental concern. Concerted educational efforts must be made to achieve those levels of understanding necessary to effect a reduction in the amount of material for which disposal is required, to encourage recycling and composting and to facilitate community organization and effective management of landfills, most of which are found in rural areas.

SPECIFIED PROGRAMS

Expanded Food and Nutrition Education Program (EFNEP). EFNEP provides low-income families knowledge and skills to achieve a nutritious diet. The program is targeted toward low-income homemakers living in rural and urban areas. New initiatives targeted to young expectant or new mothers in low-income situations reflect the urgency of reducing infant mortality in such high risk groups. Our recommendation is for 7.5 percent over FY91 to $65,064,000.

Integrated Pest Management (IPM). Extension, through its IPM program, assimilates and integrates research-based technologies into pest management systems. State specialists and field staff work with farmers and a wide variety of firms and organizations in both the private and public sectors to facilitate adaptation and implementation of systems approaches to insect, weed and disease management. Our recommendation is $12,250,000 for FY92, in increase reflecting the growing significance of these educational programs.

Pesticide Impact Assessment. Extension participates in fulfilling the federal mandate in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Endangered Species Act, by collecting data and disseminating research-based information to producers and consumers at the state and local levels. Our recommendation is for $3,580,000, the same as the FY92 Executive Budget request.

Urban Gardening. This program teaches urban youth and adults to grow their own fresh fruits and vegetables. Participants improve their health and well-being, as well as develop a degree of self-reliance and satisfaction. Our budget recommendation is $3,824,000, a 7.5 percent increase over FY91.

Farm Safety. Extension programs in each state focus on those aspects of farm safety appropriate, and in some cases unique, to that location. Education programs are being expanded to address safety and health risks associated with the handling and application of agricultural chemicals, prolonged exposure to dust and work with handicapped farmers. Our budget recommendation is for an additional $1.0 M over the FY91 appropriation for a total of $2,970,000.

Rural Development Centers. There are four Rural Development Centers in the land-grant system jointly funded by CSRS and ES/USDA. Serving regional and multi-state needs, the center programs address a wide variety of interests related to developing and revitalizing rural communities. Our request is to continue at the FY91 level.

Reservation Extension Agents. Section 1667 of Title XVI of the Food, Agriculture, Conservation, and Trade Act of 1990 authorizes funds to establish appropriate extension education programs on Indian reservations and tribal jurisdictions. Appropriation of an additional $1.0 M to a level of $2.0 M is recommended to permit more complete implementation of this Section.

1890 Extension Facilities. Institutions eligible under the 1890 Morrill Land-Grant Act will be assisted in the acquisition and improvement of extension facilities and equipment. This annual $9,508,000 authorization, initiated in fiscal 1988, is proposed to continue through fiscal 1992.

Renewable Resources Extension Act (RREA). States use these funds to provide programs of technology education to help owners and managers protect, regenerate and improve the productive potential of privately owned forests and rangelands. Our recommendation is to increase the appropriation to $4.0 M for FY92, a level that will encourage expanded efforts more in line with the contributions of renewable resources to rural economies.

Pacific Rim Project. The Agricultural Development in the American Pacific (ADAP) Project is focused on supporting cooperative efforts between and among the four Pacific territories and the state of Hawaii. Those efforts address unique communication problems associated with widely dispersed populations. Our recommendation is to continue funding at the FY91 level of $650,000 for FY92.

Crop Simulation. This pilot project is developing and testing computer models and management systems which move research findings into farm applications. Models in operation as of this date help cotton producers make decisions concerning irrigation, fertilizer rates and timing of applications, and timing of application of harvest aids. Our request is to continue funding at the FY91 level of $498,000 for FY92.

FEDERAL ADMINISTRATION

Our recommendation is the same as the request contained in the FY92 Executive Budget, $6,494,000. These funds support administrative and programmatic activities incumbent to the Extension Service within the U.S. Department of Agriculture.

SUMMARY

The budget recommendations presented in this document reflect the responsible judgment of the 1862 and 1890 Land Grant University partners in the Cooperative Extension System. Our two main priorities are to strengthen base programs and advance national program priorities. To that end, we have proposed a 7.5 percent increase in base funds, based on our analysis that 5.5 percent is required to retain purchasing power and 2.0 percent is needed to rebuild capacity and strengthen the participation of the federal partner. We have also targeted currently funded National Priorities for considerable expansion and proposed some new priorities. We believe that funding by the federal partner of these priorities exemplifies leadership in focusing efforts on important issues and successfully leverages resources provided at the state and local level for priority programming efforts.

INTERNATIONAL COMMITTEE ON ORGANIZATION AND POLICY

STATEMENT OF DR. TOM WESTING, ASSOCIATE DEAN AND DIRECTOR, INTERNATIONAL AGRICULTURE PROGRAMS, UNIVERSITY OF ARKANSAS

Mr. Chairman and Subcommittee Members. My name is Tom Westing. I am Associate Dean and Director for International Agriculture Programs at the University of Arkansas, Fayetteville. Today I represent the International Committee on Organization and Policy (ICOP) of the Division of Agriculture, National Association of State Universities and Land-Grant Colleges (NASULGC).

I appreciate this opportunity to appear before the subcommittee to present our views regarding the importance of internationalizing agricultural research, extension, and higher education in the United States. I would like to request that my text be submitted in its entirety for the record. I will now proceed to summarize key points of this testimony.

Mr. Chairman, the future prosperity of United States agriculture in the new world order now depends directly upon a systematic U.S. investment in the global network of research scientists engaged in the development of new agricultural technologies. To date, the U.S. has failed to participate in that network as fully as its competitors. If U.S. farmers are to have "first access" to world-wide technological breakthroughs, the U.S. must invest in linking its agricultural science system to the expanding global system.

Next, we must promote the use of those new technologies by U.S. producers. As well, we must do a better job, through Extension, of linking our farmers to markets world-wide. Opportunities exist for farmers and small businesses to increase their profits from exporting agricultural products, if they have the knowledge of global opportunities and the know-how to participate in global markets. And finally, we must prepare graduates of higher education institutions with the expertise needed to live and work internationally. Human resource development is the key to international competitiveness.

Through the **International Agriculture Program Initiative**, the Division of Agriculture seeks an appropriation to carry out the mandate of Section 1613 of the 1990 Farm Bill. This Section authorizes the Secretary of Agriculture to strengthen the international capacity of State Universities and Land-Grant Colleges by providing support:

1. To conduct collaborative research with scientists of other countries on issues relevant to U.S. agriculture;
2. To promote the application of new technologies developed overseas to U.S. farmers and producers; and,
3. To internationalize the resident instruction programs of universities and colleges.

We applaud the Congress for its wisdom and foresight in mandating that these relevant activities be carried out under the 1990 Farm Bill. To implement this mandate, the NASULGC Budget Committee recommends a total of $11 million to begin IAPI in FY92. Resources for this initiative would be distributed to states on a competitive basis, with 1890 universities and Tuskegee receiving at least 10% of these grants.

This 1992 request includes $3.375 million for the Cooperative State Research Service; $2.25 million for the Cooperative Extension Service; $2.24 million for Higher Education and $1.125 million for the National Agriculture Library. In addition, the Division of Agriculture supports a $2 million request for the Agricultural Research Service to strengthen the international research capacity of Agricultural Research Service scientists stationed at State Universities and Land-Grant Colleges. These resources would be used to support international work to solve problems that may be blocking U.S. technological breakthroughs.

This mandate is most timely considering:

1. The status of the United States in world agricultural research has decreased significantly since 1959, based on the percent of total dollars invested in agriculture research worldwide (Judd, Boyce, Evenson 1986).

	1959	1970	1980
Dollars expended (1980 constant)	32%	22%	18%

2. Other nations have strategically invested in effective linkages with global agricultural research and education networks; in contrast, the U.S. has neither the policy nor the funding needed for adequate participation.

3. Being able to tap into global information is essential today, in order to advance U.S. agriculture. The ability to keep pace with scientific and technical information from overseas requires strengthened participation in the global information network.

4. We must be attuned to the needs of our students for information about global agriculture. Graduates of agricultural higher education programs will need knowledge of the cultures, languages, and ways of doing business in other countries in order to have greater clout in the global marketplace; faculty need expanded skills; curricula must place greater emphasis on global competency. The human resource issue is a key to international competitiveness.

For a detailed analysis of the challenges in this area, we have distributed a recent paper to each of the committee members which clearly outlines the major issues and global trends confronting U.S. agriculture. The paper, entitled New Tools for World Leadership: Science, Education and Information has been prepared by Dr. William Furtick, formerly USAID Agency Director for Food and Agriculture and Dean of Agriculture at the University of Hawaii.

I would like to relate an experience of a major agricultural industry in our region which illustrates how rapidly globalization is occuring. Some years ago there was very little interest in moving the broiler industry beyond our domestic borders. At that time, the major broiler producer in the nation, who happens to be located in Arkansas, entertained an interest but indicated there was more than enough domestic business and that interest in international markets was minimal. However, over the last three years, this broiler processor realized that a significant part of his product which experienced a soft demand domestically found considerable demand internationally. He reassessed his position because he found that the international market provides an opportunity to balance his supply of dark meat.

This producer is now spending approximately fifty percent of his time developing international markets. Due to his international focus, many related industries in Northwest Arkansas have developed the impetus to internationalize their market strategies. A local Chamber of Commerce is now developing international markets and linking up with the Land-Grant University system for the needed technical expertise.

In summary, the Division of Agriculture is requesting a 1992 appropriation of $11 million to carry out the International Agriculture Program Initiative called for in the 1990 Farm Bill.

In Research...resources would be applied toward collaborative international agricultural research programs which will link U.S. scientists with overseas colleagues doing state-of-the-art work relevant to U.S. agricultural competitiveness, and will make monies available to U.S. agricultural scientists to clearly identify and focus on problem areas that are in the self-interest of the U.S.

In Extension...IAPI would emphasize the application of new technologies developed abroad to U.S. agriculture; increase profits of U.S. producers, processors and agribusiness firms by matching them with export markets; and, encourage educational programs to increase public understanding and awareness of the relationship between global agriculture and the long-term well-being of U.S. agriculture.

In Higher Education...our U.S. students need the tools to operate in the global marketplace. Internationalizing higher education programs will require resources to add a global dimension to our curricula; to support foreign experiences for faculty; and to support U.S graduate students in international food and agricultural science studies.

In Information...greater access to global information will keep scientists up-to-date on the latest scientific and technical developments world-wide and increase the capacity of the National Agricultural Library's Agricultural Trade and Marketing Information Center and other centers to improve access to international information.

Mr. Chairman, in order for U.S agriculture to recapture its place in global competitiveness, a long-term, clearly focused program in international research, extension and higher education is needed. Such programs are in the vested self-interest of the U.S. and can only come about with a long-term commitment by the Congress to integrate the global perspective.

Mr. Chairman we thank you and the subcommittee for its continuing interest in and support of these international agricultural initiatives. I would be pleased to answer any questions for your or any member of the subcommittee.

New Tools for World Leadership:
Science, Education and Information

A policy paper by

William R. Furtick

February 25, 1991

INTRODUCTION

As we look to the 1990s, the implications for continued U.S. agricultural leadership are critical. The United States' role as an economic decisionmaker has diminished as the global marketplace has emerged. The development of worldwide financial markets, foreign ownership of a large portion of the federal debt, world output shifting to Japan and the Pacific Rim, and huge increases in foreign trade have all reduced the economic sovereignty enjoyed by the United States.

The U.S. has become simultaneously more dependent on other nations and less dominant in world markets and scientific communities. For the past twenty years we have been bystanders as international events changed the economic landscape. Our boundaries are no longer the borders of our states, but every corner of the globe. Today we are challenged to confront our global interdependence by changing the missions and underlying structures of our existing institutions.

I will start by outlining some of the major issues and global trends confronting U.S. agriculture. Then I'll discuss how we can respond to these challenges with changes in our agricultural system - especially at the U.S. Department of Agriculture (USDA) and the Land-Grant Universities. Lastly, I will list some modest yet crucial initiatives that can be implemented in fiscal year 1992, intitiatives that open the door for U.S. agriculture to the international arena.

URGENCY FOR CHANGE

Western Europe

Western Europe has risen from a net importer a decade ago to become a major agricultural exporter today. They now compete through a highly subsidized agricultural production and export program, with both public and private sectors investing heavily in agricultural research. Economic unification of Europe in 1992 will have a major impact on U.S. business, transforming Europe both as a consumer and a competitor. The economies of scale gained from having an internal agricultural market of 325 million people and a combined agricultural research system larger than that of the U.S. will create formidable obstacles to competition. We cannot maintain our agricultural leadership without penetrating this economic and technological fortress.

Eastern Europe

Eastern Europe is moving rapidly toward privatization -- installing the incentives needed for an efficient agricultural production system. It is endowed with large areas of fertile farmlands and has four times as many agricultural scientists as North America. The low cost of labor is another comparative advantage for agricultural growth in this region. A research-driven, open-market, agricultural economy in Eastern Europe could give rise to yet another major export competitor for the U.S.

The Pacific Rim

Throughout the 1980s, the so-called newly industrialized countries of Asia -- South Korea, Hong Kong, Taiwan and Singapore -- experienced the most rapid rate of income growth in the world. This growth has been fueled by rapid urbanization and industrialization, and by converting land and human resources from agricultural to industrial use. Given the expectation that these economies will continue to grow beyond the year 2000, prospects are very bright for U.S. agricultural export expansion, especially for higher value goods. The fact that these countries have limited arable land and rising labor costs suggest that the region is a good prospect for agricultural commodity export as well.

Developing Countries

While high-income industrialized countries of the world continue to be the most important markets for U.S. farm commodities, the long-term growth market will be in the developing countries. These countries account for three-fourths of the world's population and are currently the world's fastest growing segment in terms of population. Provided they can increase the growth rate of their economies to the point where they can afford to pay for more imported goods, the sheer mass of consumers alone will provide tremendous market opportunities for U.S. farm commodities.

Rising incomes in the developing world also favor U.S. agriculture. The proportion of people living in absolute poverty in relation to total world population has been steadily decreasing. This is particularly true in Asia, where the majority of the world's population lives. Even in Latin America, where heavy debt and mismanaged economies are the norm, overall incomes have improved. The result of improved national income is twofold. First of all, food consumption increases. Second, there is a change in diet preference away from cereals and starchy commodities to more meat, vegetables, fruit, edible oils and sweeteners. Asia is experiencing a rather dramatic shift in this direction, as witnessed by local meat shortages and a rapid increase in production and importation of meat and feed grains. These grain imports are feeding rapidly growing poultry, swine and aquaculture industries. Barring unforeseen events, these trends should escalate.

The United States has much to gain by supporting income growth in developing countries. The basis for such support rests on the relationship between agricultural development in poor countries and the resulting demand for imported agricultural products. This is due to the fact that their rate of growth in agricultural consumption exceeds that of their agricultural production. It follows that successful agricultural development in developing countries promotes broad-based economic growth. This in turn leads to higher incomes which in most cases go directly to additional food consumption, especially higher value goods which are often unavailable domestically. The essence of these trends is that support for international development, especially agricultural development, is essential to expanding markets for U.S. agricultural goods. Unfortunately the U.S. has never formed this linkage between foreign assistance and U.S. farm export expansion in terms of policy, programs, or in the minds of the agricultural community at large.

Biotechnology and Information

Technology has been the key to U.S. agriculture in the 20th century (and still is!). The mechanical era of 1920 to 1950 enabled farmers to make the transition from horsepower to mechanical power and greatly increased the productivity of U.S. agriculture. The industrial and agricultural chemical era of 1940 to 1980 further increased yields by controlling pests and diseases with chemicals, and with the greater availability and use of chemical fertilizers. Now agriculture is advancing by a combination of two new eras, biotechnology and information.

Biotechnology offers tremendous potential for improving crop and animal production and bioprocessing. Researchers have already used biotechnology to develop safer vaccines for animals against viral and bacterial diseases such as pseudorabies, scours and foot and mouth disease. Use of biotechnology can increase the efficiency of developing animal products that are leaner and more nutritious. It can provide scientists with new tools to develop higher yielding and more nutritious crop varieties, and can improve the stability of yield by reducing the impact of adverse climatic conditions, pests and diseases. Demands for sustainable agriculture see promise in these new technologies.

Governments in many countries have prophesied the future benefits of biotechnology and the potential problems that may arise with proprietary rights. International networks in biotechnological research are emerging rapidly for all the major commodities. U.S. foundations and corporations have been quick to participate in these networks, such as the International Biotechnology Collaboration Program under the chairmanship of Nobel Peace Laureate Norman Borlaug. The USDA needs to link into this global undertaking and other emerging biotechnology networks. The new technologies developed through these networks will have enormous impact on world agriculture, or at least for the participants in the network.

The information era, spawned by communication and computer technologies, will also greatly change agriculture. The impact can already be seen in irrigation control, food processing, modelling and simulation, and remote sensing applications. Computer technologies will be increasingly relied upon to access research information abroad, organize that information, and apply it most effectively on the farm. As worldwide technological capability grows, new agricultural technology will accrue benefits to its earliest adopters. U.S. agricultural leadership will increasingly depend on the flow of new technology and information to American farms and food industries.

Natural Resources Management

Concern for the country's management of its natural resources has lead to demands for a more sustainable agriculture. Contamination of water by fertilizers and pesticides, abuse of fragile and nutrient-poor soils, and waste disposal are serious environmental problems in many parts of the U.S. Solving these problems will require much more new knowledge and the application of new technologies. Even environmental degradation beyond the American farm is affecting agriculture.

Various human activities are changing the chemical and physical climate of the earth. The combustion of fossil fuels, slash and burn agriculture, and the harvesting of forests are said to be inducing a general warming of the earth's climate. The implications of global climate change on agriculture and forestry warrant the search for new solutions. Rapid population growth and industrialization threaten biological and genetic resources. Maintaining world biological and genetic diversity is a vital interest for U.S. agriculture. In summary, it is becoming clear that we must live and prosper not only within our environment, but with our environment. We must develop a better understanding of our ecosystems structure and function to better manage our growth with that of our environment.

Changing Patterns of Technology Transfer

Global leadership in technology development has become rather diffuse. Before World War II, Britain and Germany prevailed in advanced agricultural and industrial technology. After the War, the U.S. assumed the lead. During the past decade, however, the U.S. has lost this advantage as technological prowess has been acquired in many countries. More recent studies reveal that U.S. preeminence in agricultural science is eroding further, and that we are now net importers of agricultural technology. The implication of this trend is clear. We must actively participate in technological developments abroad to bring the benefits home.

The modus operandi for agricultural research today is participation in international collaborative networks. These networks have emerged over the past 20 years to mobilize world financial and scientific resources to address problems in major commodities, agro-ecological regions and a variety of factors of production. The return on investment for these networks has been more than double that of equivalent national research due to the quality of participating scientists and the institutional infrastructure and outreach inherent in such collaboration. U.S. involvement has been limited and largely ad hoc, in contrast to that of our competititors in Europe, Japan, Canada, Australia and other countries. They have substantial linkages and some have proceeded to build their own international collaborative networks for agricultural research.

A classic example can be cited in corn. The International Maize and Wheat Improvement Center in Mexico tried to build a network between its research staff and the public and private sector scientists in the U.S., Europe and at advanced research centers in developing countries. The Europeans immediately took up the challenge and established a joint program with their leading public and private sector scientists. The European Economic Community put up $5 million/year of supplemental funding. They are now several years into a high-technology effort with the world's premier corn scientists, while our universities and some private sector scientists have met twice to agonize over where they could obtain funding to start a similar network.

One of the major actors in the global research system is the network of twenty-five International Agricultural Research Centers (IARCs - see glossary). These Centers have international mandates covering food commodities (e.g. corn, wheat, rice, sorghum, millet, beans, potatoes, sweet potatoes, etc.), factors of production (e.g. pest management, livestock diseases, livestock management, soil management, fertilizers, etc.) and agroecological zones. They have become the global focal point for worldwide germplasm collection, preservation and enhancement. They are also providing leadership in the development of low-cost, sustainable agricultural technologies, in training and in managing other international research networks. While the mission of the IARCs is to improve the quality and quantity of food production in developing countries, the benefits that have accrued to the U.S. and other industrialized countries are enormous.

The IARCs are funded by over 30 donor governments, multilateral organizations and foundations. Funding is channeled through the Consultative Group on International Agricultural Research or through donor support groups. Once again, however, the U.S. has failed to establish linkages with the IARCs that compare to those of our European and other competitors. For every dollar the European governments contribute to the budgets of the IARCs, they spend at least three dollars to link their own scientists to those Centers. In contrast, the U.S. allocates less than three cents for every dollar contributed. These linkage funds not only funnel new technology back to the donor country, but also provide an avenue for its scientists to receive valuable training and employment.

Lastly, it is important to note how the regulatory environment is affecting technology development and application. Over the past two decades, private investment in R & D has surpassed that of the public sector. Multinational corporations now dominate the development and delivery of agricultural technologies. While many of the largest multinationals are U.S. based, they have no allegiance to this country. They can easily relocate to countries with greater resources or more favorable regulatory environments. This contingency has not been adequately recognized by national regulators. For example, the U.S. Department of Agriculture's stringent regulations in biotechnology could be very damaging to U.S. interests in the long run. Relocation by some U.S. multinationals, which are leading in biotechnological research, would result in significant loss of U.S. jobs and create numerous impediments to the application of these promising technologies in this country.

RESPONDING TO OUR INTERDEPENDENCE

These trends expose two profound realities -- that the U.S. is irrevocably tied to developments around the world and that we are not taking full advantage of the opportunities they present. The future prosperity of U.S. agriculture and its ability to compete in world markets depend on how well we integrate into international agricultural research, development, information networks, and education. The time has come for our agricultural institutions to change and reflect our global interdependence.

Research

Our market share and competitiveness are dependent on ready access to the primary sources of new technology development that are largely located abroad. Yet we sit isolated today and watch a global agricultural research system take the lead. Who is in charge of linking our agricultural research system into this emerging global research giant just beyond our borders? Unforunately the answer is really no one, or more accurately, many to a small extent.

What can we do? We can link into the global research system through more collaborative initiatives and thereby keep our producers on the cutting edge of new technology developed abroad. Our primary linkage into international agricultural research has been through the U.S. Agency for International Development (AID). The USDA has invested less than $5 million yearly in international agricultural research activities out of a total research budget exceeding $500 million. USDA can benefit greatly by examining AID's successful collaborative research programs as models in building ones tailored for domestic needs.

An excellent illustration of the benefits gained through collaborative research is AID's Collaborative Research Support Programs (CRSPs). Today there are eight CRSPs in operation, cofunded by participating U.S. universities, overseas institutions and AID. These programs are the archetype of international collaboration -- they are jointly funded by all the particpants who conduct mutually beneficial research. It's a win-win situation and the return on investment is much higher than domestic research because the CRSPs attract the best resources -- front line university research staff from the U.S. and abroad. The results of their research have been rapidly utilized by our private sector. U.S. producers have received their benefits as well.

- The Bean/Cowpea CRSP has used germplasm in developing countries to create new bean varieties that are now planted on 200,000 acres in Michigan alone. In a normal year, the improved varieties give a 30 to 35 percent yield increase, meaning $12,960,000 more for Michigan farmers.

- The Sorghum/Millet CRSP developed green bug resistant sorghum from foreign germplasm. Economic gains to the U.S. from these new sorghum varieties was $389 million under current farm provisions. The annual rate of return of the U.S. investment in this CRSP has been 49.2 percent!

- Nearly every commercial sorghum variety sold in the U.S. has parentage gained through the Sorghum/Millet CRSP. This program can also claim responsibility for the introduction of millet as a profitable new crop in many of the more marginal areas of the U.S.

In addition to these benefits, the CRSPs have been resoundingly successful in bringing international exposure to U.S. universities. Faculty have gained insight through contact with some of the world's best scientists. The flow of information into the U.S. has improved. A significant number of U.S. graduate students have received degree training through the CRSPs. In short, the CRSPs are developing a new cadre of American scientists with international experience and understanding.

Yet we have not tapped the full potential offered by the CRSPs. Early efforts to establish CRSPs for our major commodities were thwarted by farm groups that perceived these programs as not having a vested interest for U.S. agriculture. In retrospect, blocking those initiatives was self-defeating. Our European competitors are several years ahead in international collaborative research in these commodities. USDA should waste no time in forming similar international collaborative programs for research on corn, wheat, rice, barley, potatoes, and our other major commodities.

The USDA budget for research has not increased in real dollars in 25 years. This fact alone should add credence to arguments for modest funding to link U.S. agriculture into international agricultural research. Perhaps one of the most pressing needs is for more linkages with the International Agricultural Research Centers (IARCs). As already mentioned, these Centers are providing leadership in global agricultural research networks, ones which our competitors have duly tapped into. The U.S., through the USDA, could begin to reap the benefits of the IARCs new technologies and information by merely seconding scientists from our agricultural system to work at the Centers or providing funds that allow U.S. university faculty and students to conduct collaborative research at the Centers.

A program within USDA that links our scientists into the IARCs and other international food and agricultural organizations is long overdue. Great potential also lies in linkages with selected national agricultural research and technology groups around the world. Small amounts of funds would position U.S. scientists within these organizations and better enable the U.S. to draw out the benefits. Our current lack of linkages with the IARCs, for example, may result in our falling behind in the utilization of promising new technologies. To illustrate the point:

- The International Rice Research Institute is changing the basic plant architecture of rice and creating commercially feasible hybrids. The results are expected to increase yield by 30-35 percent without increased inputs.

- The gene for quality protein maize discovered years ago at Purdue University has been utilized by the International Center for Maize and Wheat Improvement in Mexico, to develop new high-yielding corn hybrids that are greatly increasing the efficiency for producing pork and poultry at lower costs. These are being adopted by various countries, especially Brazil, but the U.S. is lagging far behind.

- New potato technologies developed by the International Potato Center are making it easier to develop and plant new varieties with greater disease resistance and superior quality. We need closer linkages with these programs.

- The International Institute for Tropical Agriculture has become a major center for developing biological control for insect pests. Several IARCs have pioneered new techniques to discover host plant resistance to insects. The U.S. is lagging behind in non-chemical control measures being developed abroad by the IARCs.

It is crucial for U.S. agriculture to recognize its technological interdependence. TRW, a leading technology consulting company, has estimated that by the year 2000, 80 percent of all research breakthroughs and major technological developments will originate outside the U.S. Present concerns about U.S. technology being exploited by foreign rivals must be dispelled, and replaced by active participation in international collaborative research networks.

Information

Access to worldwide science and technology information is another U.S. shortcoming. During the 1980's, large debates emerged over a national information policy. The Office of Management and Budget dominated executive branch policymaking and showed little interest in science and technology information. The President's Office of Science and Technology Policy also failed to recognize information as an integral part of their efforts. Today vocal support for national information policy has subsided, and the Central Intelligence Agency and Navy Intelligence Agency remain the only Federal institutions mandated to gather information on foreign technology developments. Of course that information is rarely made available to outside groups.

U.S. agriculture must have technology information operations abroad to identify worldwide research progress, new products, market opportunities, and foreign competition. The Japanese have been enormously successful in adding to their research base by becoming familiar with foreign programs. Both Japan and the Soviet Union have set up specialized agencies to gather overseas information on a broad range of technology developments and disseminate that information domestically. The U.S. has no specific agency to serve such an information intelligence role, and USDA's efforts in this area are neither defined nor coordinated.

Establishing an international information retrieval service within USDA would be a boon for U.S. agriculture, especially for agricultural research directed toward commercial goals. The Foreign Agriculture Service and the Economic Research Service could join forces with our overseas research labs to provide a solid base in foreign territory. The National Agricultural Library could be the repository of international information and facilitate its dissemination to the Agricultural Research Service, universities, colleges and the private sector. Data bases such as the Computerized Research Information System (CRIS) could be used to store, process and disperse all foreign research information. Applying our nations cutting-edge technology in computerized information systems to this intiative would be the icing on the competitive cake.

Higher Education

American universities, particularly the land-grant universities and colleges, have provided a unique contribution to the development of American society. Unlike most of their European counterparts and those based on the European model, our universities have played a substantial and diverse role beyond a purely academic nature. U.S. universities have grown into major research centers that conduct not only basic and strategic research directed at expanding the frontiers of human knowledge, but also adapt and apply this knowledge to satisfy changing human needs and desires. The result is a closer relationship between the faculties of universities and American industry, business, government and the general public.

Universities operate in a variety of partnerships with local, state and national governments and with various non-governmental citizen groups. In addition, there are a variety of interrelationships between universities and the private sector. Faculty move easily between government service, often at the highest levels, and their university base. They serve as consultants to corporations, move back and forth between universities and the private sector, and collaborate with the private sector through a variety of research and training contracts. This dynamic, interactive role of the American university is the foundation from which this country can build the human resources it needs to compete in a global economy.

Our business community suffers from U.S. educational deficiencies in the international arena. To compete in world markets Americans must know more about their competitors -- their languages, customs, and economic strengths and weaknesses. Other countries have commited their university systems to international education. European countries are planning to send 10 percent of their students to study abroad in preparation for 1992. In contrast, roughly .4 percent of American college and university students study abroad each year. Donald R. Kieough, president of Coca-Cola, contends, "We can do no less if we expect our leadership to continue as we are entering the 21st century. We must produce young people who will understand the world."

While U.S. universities have begun to respond to demands for international education, the adjustments have been cosmetic to a large part. The establishment of international agricultural offices is inadequate as a single strategy. What is needed is an integration of international elements into every department and program in the colleges of agriculture. Curriculum as well cannot be rectified just by adding an international course or two. A genuine commitment to international education must entail a systematic induction of international programs into every department and international perspectives into most classes.

A second language requirement is no panacea either, although it is long overdue. U.S. students need to know more than just how to speak a foreign language. They need experience and understanding of other economies, cultures, competitors and sources of expertise. More opportunities must be made available for students to gain such insight by studying and conducting research in foreign countries and with international organizations. Funding for these and other international programs can be sought from the university beneficiaries such as local, state and regional businesses. Our universities must work harder at educating those constituencies and articulating the benefits acquired through international research and education.

Faculty must also develop an international orientation and gain more international experience. To begin this transition, universities must change tenure policies to recognize and reward faculty members who participate in international activities. Language training can be provided to faculty and more opportunities made for sabbaticals abroad. Greater incentives can also be provided for faculty to participate in collaborative research or to conduct research at facilities in another country. By providing faculty and students greater access to international collaborative research activities the U.S. can increase its share in the development and utilization of new agricultural technologies.

Our university system cannot afford to delay in making these suggested changes. There is already evidence of an imbalance in this country between the supply and demand of skilled professionals in agriculture. Since the early 1980's, there are 35 percent fewer college graduates with degrees in food and agricultural sciences. Those achieving masters degrees have also fallen by 10 percent. Mary Clutter, Assistant Director for Biological, Behavioral and Social Sciences at the National Science Foundation, notes that many of the Ph.D. students in this country are from foreign countries and won't stay in the U.S. We risk importing agricultural scientists to fill our own needs in the future if we can't provide opportunities for our students to enter new fields in international agriculture.

Extension

As rising incomes around the world shift consumption toward higher value food products, the USDA's Extension Service must be prepared to help U.S. producers and processors identify new markets. Participation in overseas research, education and information gathering by our Extension Service will be essential to transferring new technologies back to the U.S. and matching local needs with opportunities abroad. The need to add value also puts a premium on success in technological innovation and application, and therefore, underscores the need to have our Extension Service link into international research activities. Adding value will have benefits for U.S. consumers as well.

The Extension Service is uniquely situated to expedite a national commitment to international agriculture in rural America. It can be instrumental in educating our public about the benefits which accrue to U.S. agriculture from participation in international agricultural science, education and development. The public needs to understand the potential costs if we do not allocate resources to increase our international linkages. Too many of our farmers and the public are unaware of the macroeconomic factors outlined in this paper and still view international outreach as helping foreign competitors. The Extension Service must educate and build a national constituency for international agriculture.

New Partnerships

The U.S. agricultural system has always been the most decentralized in the world. As a result, there has been limited coordination internally and almost none externally. This decentralized system has served American agriculture well in the past, for it was responsive to local needs for appropriate technology, extension and information. Unfortunately it is not well suited for linking into the large and complex global system. The main linkages into international agriculture have been through the Agency for International Development (AID) and the universities via AID. There have been very few linkages between AID and the National Science Foundation and only fragmentary linkages with the private sector.

There is ample evidence that much of the investment by AID in international science and education has major benefits to U.S. agriculture, but the means of capturing these benefits have not been built into the foreign asistance program. They have largely accrued as a byproduct of using universities and USDA staff as contractors. These contractors have, on occasion, recognized the benefits of a specific germplasm or technology they came across as a result of their contacts. This informal system of accessing foreign technology and information must be corrected. There is a pressing need to develop new national partnerships in international agriculture, ones that maximize the return to U.S. agriculture by coordinating the missions of our institutions. AID, USDA, other Federal agencies, universities, private institutions and producers can all benefit through improved cooperation.

With growing awareness that domestic activities are inseparable from global events, many of our Federal and state agencies are beginning to increase their international involvement. So far this is happening without any real coordination and the end result will be conflict and duplication of efforts. The time has come when all the participants in the U.S. food and fiber industry join together, in a national forum, to examine ways our nation can orchestrate foreign and domestic policies in support of U.S. agricultural leadership. Many of our European competitors have already begun this merger.

France is far ahead in this regard. It has created a Center for International Agricultural Research and Development (CIRAD) in Montpeilier from which 800 professionals are posted around the world. In contrast, USDA has fewer than two dozen researchers and about 100 counselors and attaches posted overseas who are engaged in implementing USDA activities.

CONCLUSION

New and complex challenges confront U.S. agriculture -- the challenges of responding to agressive export competition, safeguarding the world's natural resources, participating in global research networks, supporting economic growth in developing countries, and building the human resources needed to compete in the global marketplace. A national consensus to address these challenges is building. The sectors contributing to the U.S. agricultural system -- the land-grant universities, other universities, agencies of the USDA, the scientific societies, and others -- are now making a case for strengthening U.S. agriculture through international outreach.

The decision to provide federal support for a strong U.S. agricultural system was made by the Congress almost 130 years ago through the Morrill Act of 1862. Now is the time to make a renewed investment in U.S. agriculture that will ensure our competitive position and global leadership in the 21st century. The commitment called for in the International Agricultural Program Initiative (IAPI) provides an opportunity to marry today's international rhetoric with an investment of resources. It sets the stage for an integration of international elements into U.S. agricultural research, extension, education and information. It lays the foundation for U.S. agricultural leadership in the global marketplace.

Provided below is a list of some of the initiatives that I feel should be included under the IAPI.

* Establish a joint NASULGC/USDA/AID working group that includes representatives from producer organizations, agribusiness firms, etc. to help develop national programs in support of U.S. LEADERSHIP IN WORLD AGRICULTURE. This could form the national base for developing state chapters with the same mandate.

* Develop capacity within USDA/SE to plan future international activities. This would entail full-time staff to act as a continuing advocates for developing coordinated international programs and perspectives into CSRS, ARS,, ES, and NAL.

* Expand U.S. participation in the United Nations Junior Professional Officers Program by providing more federal funding. The level should be doubled in 1992 and the program coupled with the Resident Instruction effort to provide an entry opportunity for completing graduate students interested in careers with international organizations.

* Provide funds for NAL to develop a comprehensive study on internationalizing its information services (should be a joint effort with FAO and CABI).

* Provide funding for the Resident Instruction Program of CSRS to develop a comprehensive plan for fellowships, internships, and post doctoral fellowships, faculty exchanges and other programs to internationalize resident instruction in agriculture.

* Link into the new International Biotechnology Collaboration Program through USDA/SE.

- **Develop a comprehensive program to increase collaborative linkages with the International Agricultural Research Centers.**

(I would like to recognize the invaluable contribution made by Daniel J. Connolly through research, consultation and editing of this paper.)

GLOSSARY

International Agricultural Research Centers

International Center for Tropical Agriculture (CIAT) - Cali, Colombia

International Maize and Wheat Improvement Center (CIMMYT) - El Batan, Mexico

Centro Internacional de la Papa (CIP) - Lima, Peru

International Board for Plant Genetic Resources (IBPGR) - Rome, Italy

International Center for Agricultural Research in the Dry Areas (ICARDA) - Aleppo, Syria

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) - Hyderabad, India

International Food Policy Research Institute (IFPRI) - Washington, DC

International Institute of Tropical Agriculture (IITA) - Ibadan, Nigeria

International Laboratory for Research on Animal Diseases (ILRAD) - Nairobi, Kenya

International Livestock Center for Africa (ILCA) - Addis Ababa, Ethiopia

International Rice Research Institute (IRRI) - Manila, Philippines

International Service for National Agricultural Research (ISNAR) - The Hague, Netherlands

West Africa Rice Development Association (WARDA) - Bouake, Cote d'Ivoire

Asian Vegetable Research and Development Center (AVRDC) - Tainan, Taiwan

International Institute for Irrigation Management (IIMI) - Colombo, Sri Lanka

International Board for Soil Research and Management (IBSRAM) - Bangkok, Thailand

International Center for Living Aquatic Resources Management (ICLARM) - Manila, Philippines

International Council for Research in Agroforestry (ICRAF) - Nairobi, Kenya

International Center for Insect Physiology and Ecology (ICIPE) - Nairobi, Kenya

International Fertilizer Development Center (IFDC) - Muscle Shoals, Alabama

The International Network for the Improvement of Banana and Plantain (INIBAP) - Montpellier, France

Commonwealth Agricultural Board International (CABI) - Wallingford Oxon, United Kingdom

Center for Tropical Agricultural Research and Training (CATIE) - Turrialba, Costa Rica

Caribbean Agricultural Research and Development Institute (CARDI) - St.Augustine, Trinidad

Works Consulted

Hess, Charles E., 1990. International Dimensions of the USDA Research and Education Programs: Potential for the Future. Speech delivered at the BIFAD Workshop, University of Minnesota, Minneapolis, MN, October 15, 1990.

National Governors' Association, 1989. Report of the Task Force on Research and Technology.

National Governors' Association, 1989. Report on the Task Force on International Education.

National Research Council, 1989. Investing in Research: A Proposal to Strengthen the Agricultural, Food and Environmental System (Washington, DC: National Academy Press).

National Research Council, 1990. Technology and Agricultural Policy: Proceedings of a Symposium. (Washington, DC: National Academy Press)

Office of Technology Assessment, 1990. Helping America Compete: The Role of Federal Scientific and Technical Information (Washington, DC: U.S. Government Printing Office).

Office of Technology Assessment, 1986. Technology, Public Policy and the Changing Structure of American Agriculture (Washington, DC: U.S. Government Printing Office).

Schuh, Edward G., 1990. The Changing Role of U.S. Universities in International Agricultural Development. Presented at Title XII Regional Seminars, BIFAD, Jefferson City, Missouri, January 28, 1990.

U.S. Department of Agriculture, 1990. U.S. Agricultural Trade Goals and Strategy Report for Fiscal Year 1991. Released October 29, 1990.

Walker, James L., 1989. The USDA International Activities in Science, Professional Development and Technical Assistance Through OICD: Challenges of the Past, Present and Future." Invited paper presented to the Joint Council on Food and Agricultural Sciences, Baton Rouge, LA, November 2, 1989.

RESIDENT INSTRUCTION COMMITTEE ON ORGANIZATION AND POLICY

STATEMENT OF CHRIS J.B. SMIT, ASSOCIATE DEAN AND DIRECTOR OF RESIDENT INSTRUCTION, UNIVERSITY OF GEORGIA

Your support of the USDA's Higher Education Programs is vital to the future competitiveness of the United States' food and agricultural sector. Information in NASULGC's 1992 Budget Committee Recommendations describes these programs which will stimulate the development of critically needed scientific expertise and equip graduates with the knowledge and skills needed to keep America's food, agriculture and natural resources system preeminent in the world.

These national initiatives are crucial to the future of both scientific and professional agriculture which, in turn, provides the foundation for our quality of life, economic stability, and national security.

We are confident these programs will continue to develop outstanding graduates and also continue to enhance academic programs, research activity, faculty expertise, and support from non-federal sources. However, significantly increased funding is necessary if we are to realize the potential for providing the strong scientific base and multicultural diversity needed in our nation's agriculture and natural resources system.

A growing concern is the lack of adequate funding for the Graduate Fellowships Training Grants Program and The Challenge Grants Program. While the President's FY 1992 budget includes three of the proposed higher education programs, the support recommended for these two priority programs is simply inadequate. For example, the Executive Budget provides support for 74 doctoral fellows, but support is critically needed for at least 130 fellows annually. This program has been highly successful with superior doctoral students graduating in water science, biotechnology, food science and nutrition, international marketing, and bioprocessing or engineering. The Challenge Grants Program, though relatively new, is clearly encouraging changes in curricula, faculty development, and instruction delivery systems.

Without qualified graduates from the nation's colleges of agriculture, the future of the food and fiber system in America is in jeopardy. Both science and business leaders need a sophistication they can gain only from the programs in these colleges. That is why support for these programs must be strengthened.

We must now reach for new levels of excellence. The Resident Instruction Committee on Organization and Policy (RICOP) believes a key element is the recruiting of outstanding students, including women and minorities. Funding must also be sufficient to support excellence and a partnership between colleges and universities, agribusiness and industry, and state and federal governments is essential if we are to succeed.

Congress, recognizing the need for excellence, has provided funding since 1984 ($3.5 million in FY 91) for the Competitive Graduate Fellowships Training Grants Program. The Executive Budget includes $4 million in its FY 92 USDA budget for the Graduate Fellowships Training Grants Program and two others, the Institution Challenge Grants ($1.5 million) and the 1890 Institution Capacity Building Grants Program ($11 million).

Despite this support, serious problems exist in American higher education in science. The evidence of the dilemma is deep, including stagnant enrollments and mediocre scholastic achievement scores. Science clearly is not a popular subject among students. Shockingly, only about 700 U.S. citizens received Ph.D.'s in the food, agricultural, and natural resources sciences last year. The future of our nation's food and fiber system is at stake.

Addressing four critical challenges could help solve this crisis: improving curricula, attracting and retaining scholars, increasing minority participation, and enriching program quality. Without proper human resources, however, efforts to improve these areas may fail.

Increasing the numbers of students alone is simply not enough. The food, agricultural, and natural resources system needs the best students possible. The office of Higher Education Programs under the Secretary of Agriculture has a number of effective programs addressing this problem, but the future demands increased funding. Without it, the United States could slip from its position of preeminence in the agricultural sciences.

RICOP has therefore made a number of recommendations regarding these needs.

GRADUATE TRAINING GRANTS (FELLOWSHIPS)

The development of scientific expertise is clearly a top national priority for our educational system. The National Agricultural Research and Extension Users Advisory Board and the USDA Joint Council for the Food and Agricultural Sciences have both repeatedly endorsed support for the Graduate Fellowships Training Grants Program.

This competitive program, established in 1984, is open to all colleges and universities, whether they belong to the Land-Grant system or not. Because of its competitive stipends, the program has attracted outstanding young men and women to Ph.D. programs spanning five areas of agriculture and natural resources characterized by serious shortages of expertise.

The program has awarded more than 500 fellowships in the five national need areas: bioprocessing or agricultural engineering; plant and animal biotechnology; food, forest products, and agribusiness marketing or management; food science and human nutrition; and water science.

The program has many superb qualities:

*It is competitive. In the past three years, the Office of Higher Education has funded only 24 percent of the proposals submitted and only 12 percent of the total number of fellowships requested by applicant institutions.

*It has attracted applications from top-flight colleges and universities. Students from Stanford University, MIT, the University of Iowa, the University of Chicago, and UCLA have won fellowships along with those from premier land-grant schools. The program demands quality and seeks the best institutions and programs for the graduate education of tomorrow's leaders.

*It brings talented scientists into the system. A 1988 nationwide symposium at the National Academy of Sciences brought the fellows together and showed clearly that they were among the brightest students in America. The Graduate Record Exam average score for the fellows is almost 1300, about 300 points higher than the average graduate student in agriculture. The fellows have been a credit to the program — articulate, critically acute, and thoughtful.

INSTITUTION CHALLENGE GRANTS

The need for the Institution Challenge Grants Program is equally clear. This competitive program is the catalyst for a steady improvement in higher education curricula in food, agriculture, and natural resources.

With funding at $3 million, there will be some 50 grants in target areas, ranging from $50,000 to $80,000. Recipients have a non-federal matching requirement for these grants, which will generate an additional $3 million for improvements in instruction.

Any educational institution that has demonstrated excellence in food, agricultural, and natural resources teaching programs may compete for a Challenge Grant. The program also encourages cooperation among educational institutions.

1890 INSTITUTION CAPACITY BUILDING GRANTS

This program helps 1890 Land-Grant Colleges and Tuskegee University conduct research and teach students more effectively. Because these institutions have historically been the nation's primary source of minority graduates in the system, their well-being is of paramount importance.

More funding must be made available at these universities to develop faculty, improve curricula, upgrade educational equipment, foster educational partnerships, and enhance research capability.

Researchers estimate that a decade from now, some 85 percent of the new workers in the United States will be members of minority groups and women. We clearly need more minority graduates in the food and agricultural sciences available to assume these professional roles.

Grants from this program encourage universities to provide matching contributions from non-federal sources. Participating universities are also required to cooperate with one or more USDA agencies in developing a proposal; in identifying potential non-federal matching funds; and in conducting capacity building programs and activities, thereby strengthening partnerships with a host of USDA agencies.

MINORITY SCHOLARS PROGRAM

The need for minority involvement in the agricultural sciences is clear as we enter the last decade of the century. A culturally diverse student body ultimately will help agriculture live up to its potential.

Minority students can offer a new social perspective in all areas of agriculture. The discipline desperately needs this valuable expertise and perspective to address global problems.

An aggressive recruitment campaign for minority students is crucial. In the past, these students have rarely elected to study agriculture. The problem is compounded by high dropout rates, low college and graduate school enrollments, and low completion rates of minority students. We must give these students a chance by making them aware of the opportunities in agriculture through competitive scholarships.

Resident instruction programs have a clear mandate to attract top minority students. Such initiatives must complement teaching programs at all institutions.

AG*SAT (AGRICULTURAL TELECOMMUNICATIONS NETWORK)

An innovative instruction delivery system (AG*SAT) has been developed through collaboration by leading 1862 and 1890 land-grant colleges of agriculture. A national video network is operational and has proved effective in delivering live college courses and cooperative extension programs throughout the U.S.

This coordinated satellite video system for instruction in food, agriculture, and natural resources provides a modern and efficient means to maintain and strengthen the competitiveness of the U.S. agricultural and natural resources enterprise.

Essential and critical courses and majors are threatened at some land-grant institutions because of fiscal constraints and/or low enrollments. AG*SAT provides the vehicle to bring courses taught by leading professors to traditional and non-traditional students in many diverse sites. Non-traditional students include adults, agribusiness personnel, personnel in food processing and retailing operations, producers, and professionals in extension offices and experiment stations. Students can communicate and interact with the professor via telephone and fax machines.

The $2 million dollar funding will support development and delivery of approximately 25 high quality priority courses offered through AG*SAT. The design and production costs of each course will range from $50,000 to $100,000.

SUPPORT OF THE INITIATIVES: CRUCIAL TO SUCCESS

Your support of these national initiatives can help keep the United States competitive in global markets. But more importantly, it can help secure a high-quality of life in our Nation through steady improvements in the food, agricultural, and natural resources sciences.

We urge your support for these higher education programs at a level of $29.85 million in FY 1992. This will provide $7 million for Graduate Fellowships Training Grants, $3 million for Institution Challenge Grants, $11 million for 1890 Capacity Building Grants, $2 million for a Minority Scholars Program $2.85 million for the Morrill-Nelson Program, $2 million for 1890 Strengthening Grants, and $2 million for the AG*SAT Program.

STATEMENT OF THE NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

The National Association of Conservation Districts is pleased to present the Association's FY92 funding recommendations for several of the agencies of the United States Department of Agriculture.

Conservation districts coordinate and carry out a variety of natural resource management programs at the local level. Many of these programs are carried out in cooperation with federal agencies which have natural resource management responsibilities. Since we share common objectives and jointly implement these programs, our membership feels it is very important for us to share with your subcommittee our recommendations on federal funding for these programs.

Listed below are NACD's line item appropriation recommendations for the programs in which conservation districts have a direct interest. The remainder of this statement will elaborate on certain of these important programs.

	FY91 ADMINISTRATION PROPOSAL	FY91 NACD RECOMMENDED	FY91 ENACTED	FY92 ADMINISTRATION PROPOSAL	FY92 NACD RECOMMENDED
	(in millions of dollars)				
SOIL CONSERVATION SERVICE					
Conservation Operations					
Conservation Technical Asst.			426.3	502.3	690.8
Soil Surveys			69.8	72.6	75.0
Snow Surveys & Water Forecasting			5.6	5.7	6.0
Plant Material Centers			7.9	8.1	8.2
(CO Subtotal)	507.0	591.0	509.6	588.7	780.0
River Basins	10.4	12.5	12.8	11.0	13.0
Watershed Planning	6.9	12.0	9.2	7.3	14.0
Watershed Operations	151.1	200.0	185.7	153.0	250.0
RC&D's	24.9	35.0	29.9	23.4	40.0
Great Plains	24.6	25.0	24.6	25.3	40.0
TOTAL SCS	724.8	875.5	771.8	808.7	1,137.0
FUNDS TRANSFERRED TO SCS					
Office of Surface Mining (RAMP)	2.1	20.0	12.0	3.0	20.0
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE					
Agricultural Resources Conservation Program (ARC)					
Conservation Reserve	2,253.6	2,470.0	1,314.9	1,642.8	2,300.0
Wetlands Reserve				124.4	10.0
Environmental Easements				0	10.0
Water Quality Protection				0	50.0
(ARC Subtotal)					2,370.0
Agricultural Conservation Program	176.0	215.0	190.2	183.0	215.0
Forestry Incentives Program	12.4	25.0	12.4	12.4	25.0
Water Bank	12.8	25.0	13.6	11.4	25.0
Colorado River Salinity Control Program	14.8	15.0	14.8	14.8	15.0
COOPERATIVE STATE RESEARCH SERVICE					
Hatch Act (grants to states)	158.5	160.0	162.3	168.3	165.0
McIntire-Stennis (forestry)	13.0	18.0	17.8	13.0	20.0

Rangeland Research	0	1.0	0.5	0	1.0
Sustainable Agriculture Research & Education (SARE)	4.5	15.0	6.6	4.5	15.0
COOPERATIVE EXTENSION SERVICE					
General Formula Funds	246.5	257.0	252.6	262.1	265.0
Earmarked Programs					
Water Quality	15.5	16.0	10.4	15.5	16.0
Pesticide Impact Assessments	3.6	4.0	3.2	3.6	4.0
Pesticide Applicator Training	--	--	--	0	10.0
Integrated Pest Management	7.2	12.0	7.5	10.0	12.0
1990 Farm Bill	--	--	--	0	50.0
Renewable Resources Extension Act	0	15.0	2.8	0	15.0
FARMER'S HOME ADMINISTRATION					
Rural Community Fire Protection	0	3.1	3.5	0	3.5
Soil & Water Loans-Direct	0	14.0	5.5	0	14.0
Soil & Water Loans-Guaranteed	0	0	1.5	0	2.0
Watershed Protection & Flood Prevention	0	8.0	4.0	0	8.0
RC&D Loans	0	1.2	0.6	0	1.2

SOIL CONSERVATION SERVICE

In 1985 Congress enacted the Food Security Act (P.L. 99-198) directing the USDA Soil Conservation Service (SCS) to provide conservation planning and technical assistance on vast acreages of lands under the Title XII, the Conservation Reserve Program, and Title XIII, subtitles A and B, the Highly Erodible Land and Wetlands Conservation titles. The Food, Agriculture, Conservation and Trade Act of 1990 (P.L. 101-624) amended those titles, and added significant new programs to be implemented by SCS. Several other federal programs require SCS to provide landusers with conservation planning and technical assistance on croplands, range and pasture lands, surface-mined land, urban erosion and sediment problems, and others. In addition, SCS has entered into memoranda of understanding with nearly 3,000 local conservation districts to provide similar assistance to address local conservation priorities.

After initial cuts in the early 1980's, federal appropriations to fund SCS have remained relatively constant since 1985. The workload, however, has increased dramatically, resulting in severe staff shortages and the inability of the agency to meet its obligations under federal law, and under the agreements with local conservation districts.

Reports from USDA agencies, including SCS, as well as studies by independent organizations provide compelling evidence that the magnitude of the SCS workload far exceeds the resources available to address it. For SCS programs alone, USDA estimates that at least 4,000 additional staff years are needed to carry out the very minimum requirements of the 1985 and 1990 farm bills. To carry out the farm bill programs to the extent intended by Congress will require significant increases in SCS funding and staff capabilities.

To illustrate the magnitude of the problem, USDA and others report that:

* 10,000,000 acres need to be planned under the agricultural water quality program mandated by the 1990 Farm Bill -- 1,000 staff years are needed to carry the initiative to 1995 as scheduled.

* 500 staff years are needed to service the 90 water quality hydrologic unit area initiatives (HUA's) in progress; 90 additional HUA's requiring another 500 staff years are needed by 1993 to remain on schedule with USDA's water quality initiative.

* 5,500,000 acres must be brought into the Conservation Reserve Program in the next five years, primarily as shelterbelts, windbreaks, and wellhead protection areas -- at least 1,600 staff years will be needed to complete the plans.

- * 1,000,000 acres of wetlands must be restored over the next three years -- 1,500 staff years will be required to complete the restoration.

- * 1,400,000 acres of wetland determinations must be made over the next three years -- 1,200 staff years are needed to carry out this task.

AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

The conservation programs of ASCS are an integral part of our federal conservation effort. NACD recommends the following appropriations:

- * $2.3 billion to fund a 40 million acre Conservation Reserve Program in FY92. This includes $1.7 billion for existing contracts, $300 million for 1991 contracts, and $300 million for 1991 cost-share payments.

- * $10 million in start up funds for the new wetlands easement program authorized by the 1990 Farm Bill.

- * $10 million in start up funds for new environmental easements authorized in the 1990 Farm Bill.

- * $50 million in start up funds for the new water quality incentives program authorized in the 1990 Farm Bill.

- * An increase from $190.2 million to $215 million for the Agricultural Conservation Program.

COOPERATIVE EXTENSION SERVICE

In addition to supporting continued funding for the General Formula Fund account, we are also recommending that the subcommittee earmark funds for several important natural resource programs administered by the Service. NACD recommends an appropriation of $16 million for water quality programs, $4 million for pesticide impact assessments, $10 million for pesticide application training, and $12 million for integrated pest management programs. In addition, we recommend that $15 million be provided to fully fund the Renewable Resources Extension Act. We also recommend that $50 million be allocated to support the following new provisions authorized under the 1990 Farm Bill:

- * Conservation title implementation -- $10 million

- * Best Utilization of Biological Applications (BUBA) section 1621 -- $10 million

- * Integrated Management Systems (section 1027) -- $10 million

- * Sustainable Agriculture Technology Development and Transfer (section 1629) -- $10 million

- * Rural Development (section 2346) -- $10 million

Please feel free to contact us if you have any questions. Thank you for the opportunity to share our recommendations with our subcommittee.

STATEMENT OF THE NATIONAL ASSOCIATION OF HOME BUILDERS

Mr. Chairman and Members of the Committee:

We are pleased to present the views of the National Association of Home Builders' more than 155,000 member firms, representing eight million employees, on the fiscal year 1992 appropriations for Farmers Home Administration rural housing programs.

The National Association of Home Builders urges increased funding of FmHA rural housing programs. Last year, the Senate and House Banking Committees passed landmark housing legislation. The Cranston-Gonzalez National Affordable Housing Act authorizes increased appropriations levels which were carefully crafted according to national need and demand. NAHB supports these increased levels. Specifically, the Act authorizes $1,451,100,000 for the Section 502 single family direct loan program, $739,500,000 for the Section 515 rural rental housing loans program, $414,100,000 for the Section 521 rural rental assistance program, and $12,400,000 for the Section 504 low-income repair loans program. The following testimony outlines the severe need and great demand for these programs which are so vital to rural America.

However, the funds which you appropriate may not effectively serve the rural poor if the current delivery system is altered. Therefore, NAHB continues to oppose the implementation of a Rural Development Administration which would create a duplicative bureaucracy and further deplete FmHA's already strapped resources.

SEVERE NEED FOR RURAL HOUSING

The number of rural poor in need of affordable shelter has steadily increased, while funding for rural housing programs has been cut drastically. The existing need is staggering, and continues to grow. Each year, a greater amount of low-income rural dwellers pay more than 50% of their income for rent. Instances of rural homelessness have increased dramatically. Despite the severe need, funding of the Farmers Home Administration rural housing programs has been slashed by 50% over the last decade. The result has been an approximate 70% decline in the number of housing units constructed in rural areas.

Participation in the Section 502 homeownership program is strictly targeted to those most in need. Forty percent of the funding must go to individuals or families making 50% or less of the area's median income. Remaining funds are allocated to occupants making 80% or less of the area's median income. As borrowers' incomes rise, the assistance is reduced and when the home is sold the government recaptures the subsidy. The average family served by this program has an annual income of about $12,000. The Section 502 program serves truly rural areas. The overwhelming majority of all Section 502 homes are located in communities with a population of less than 10,000.

Participation in the Section 515 rural rental housing loans program is also strictly targeted to those most in need. Approximately 70% of tenants have annual incomes below $6,000. Over 40% of the units are occupied by elderly persons in need of assistance. The average family served by the Section 515 program has an annual income of about $8,000. Approximately 50% of Section 515 projects are located in communities with populations of under 2,500, and approximately 90% are located in communities with populations of under 10,000. No loans are allowed in communities with populations of over 25,000.

FmHA rural housing programs are substantially oversubscribed. In fiscal year 1990, only one third of eligible applications for the Section 502 homeownership program actually received loans. Under the Section 515 rural rental housing loans program, applications totalling $1.7 billion are on hand at FmHA and could be approved if funding were available.

THE ADMINISTRATION'S PROPOSED FISCAL YEAR 1992 BUDGET

The Administration's fiscal year 1992 Department of Agriculture budget calls for sharp reductions in federal rural housing programs for the poor. The FmHA budget includes a reduction of direct rural housing lending of approximately one billion dollars.

The proposed FmHA rural housing budget includes the following:

- The Section 502 direct loan program would be reduced by more than 50%. The Section 502 program received a fiscal year appropriation of $1.226 billion. The President seeks to reduce this amount to just $559 million.

- The Section 515 rural rental housing loans program would be cut by over one-third. The current $573.9 million program is slated to be reduced to $341 million.

- The Section 521 rural rental assistance program would receive a $38 million cut, from $308 million to $270 million.

- The Section 502 unsubsidized guaranteed program would be increased from $70 million to $347 million, and the Section 502 subsidized guaranteed program would be increased from $30 million to $347 million.

- A $190 million rural housing voucher program would be created.

The Administration's proposed cuts are not reflective of the severe and growing shortage of affordable rural housing and the increased demand for FmHA homeownership, rental, and rental assistance programs. Current funding levels do not sufficiently meet the dire need. Any further cuts would be devastating.

The proposed 50% reduction in Section 502 direct lending would dramatically reduce the number of first-time homeowners in rural America. Section 502 direct lending is desperately needed to serve the low- and very low-income segment of the rural population which is not adequately served by conventional lending institutions.

On the rental side, in the last fiscal year Section 515 funds dispersed to the states were allocated and obligated by May, 1990. The result was an overwhelming demand for additional funding. By the August, 1990 FmHA national pooling date, all Section 515 monies had been reallocated and obligated. A builder that submits a proposed rural rental housing development today must, in some areas of the country, wait up to three years for funding to be available. This inordinate delay is evidence of the heavy demand and need for low- and moderate-income affordable housing units throughout rural America.

Section 502 Guaranteed Loan Program

The fiscal year 1992 budget would dramatically reduce homeownership opportunities for low-income families residing in rural America. The Administration proposes not only to cut the direct loan level, but also to shift authority for single family housing loans to loan guarantees. The loan demonstration program is unproven, and a proposed increase in guaranteed loans is premature. The guaranteed loan program was authorized in November, 1990, and its acceptance by the secondary market is not assured. Furthermore, NAHB strongly opposes increased funding of the guaranteed loan program at the expense of the Section 502 direct loan program.

Rural Housing Vouchers

The Administration has proposed a $190 million FmHA rural housing voucher program. A housing voucher program is not a substitute for new production. A voucher program can not be successful unless there is an adequate supply of rural housing units available on the private market. This is not the case.

There has been a serious decline in existing housing stock, largely due to reduced funding levels. New production is desperately needed to counteract this decline. In addition, a 1987 GAO study, "Rural Rental Housing Cost Information on FmHA's Section 515 and other Housing Options" (GAO/RCED-87-96), indicates that voucher subsidy costs with rent adjustments applied were more expensive for serving very low-income families than the Section 502 and Section 515 programs. We are pleased that in past years this Subcommittee has chosen not to adopt the Administration's proposal for a voucher program, and we urge you to once again concentrate your resources on enlarging the depleted housing stock.

RURAL DEVELOPMENT ADMINISTRATION

The National Association of Home Builders supports improved rural economic development throughout the nation. However, rural economic development measures which impede existing rural housing programs would be counterproductive. Last year, NAHB opposed much of the House version of rural economic development legislation, H.R. 3581. Unfortunately, the most onerous component of the bill, the creation of a Rural Development Administration (RDA), was passed as part of the 1990 farm bill (P.L. 101-624).

A Rural Development Administration within the Department of Agriculture is currently being planned. The RDA would have jurisdiction over rural and small community development programs currently under the auspices of FmHA (water and sewer, business and industry, etc.). NAHB strongly opposes its implementation as it would pose a serious threat to the current levels of FmHA housing staff. An RDA would create additional bureaucracy and further deplete FmHA's limited resources.

In addition, NAHB strongly opposes the creation of a state economic development review panel program. The panels, composed of special interests with the right to review and rank assistance applications, would prove to be exclusionary. Further, the requirement that all communities within the demonstration program submit area plans would also be exclusionary. Communities most in need of assistance are often least able to develop area plans.

In 1988, the Department of Agriculture issued a report entitled "A Report on Rural Economic Development in America" which highlights various programs and services that are available to address the issue of rural economic development in the final decade of the 20th century. Before new ground is broken we urge Congress to require the Department to complete the work it started by providing a status report on the progress of the USDA's Six-point Rural Regeneration Initiative which was detailed in that report.

Therefore, we respectfully urge your Subcommittee to further protect FmHA rural housing programs by preventing the implementation of the Rural Development Administration.

CONCLUSION

In conclusion, we urge you to assist the rural poor to obtain affordable housing by providing adequate levels of funding for rural housing programs with sufficient levels of rental assistance. The National Association of Home Builders supports full funding of the fiscal year 1992 levels authorized by the Cranston-Gonzalez National Affordable Housing Act.

Not only do FmHA rural housing programs provide much needed housing, but they boost the rural economy dramatically. In fiscal year 1990, the Section 502 program produced 14,743 new homes, created 25,933 new jobs, generated $674,300 in wages and had a total tax impact on federal, state and local government of $225.5 million. The same year the Section 515 program produced 15,852 new rental units, created 13,094 jobs, generated $340,438 in wages earned and provided federal, state and local governments with $112.3 million in tax revenues.

We urge the Subcommittee to continue its support for rental and homeownership opportunities for low- and moderate-income rural Americans.

We thank you for allowing us to submit our written comments and respectfully request that they be included in the Senate Appropriations Subcommittee's permanent hearing record. We look forward to continuing to work with your Subcommittee in the production of affordable housing for rural America.

NATIONAL ASSOCIATION OF PROFESSIONAL FORESTRY SCHOOLS AND COLLEGES

STATEMENT OF LARRY W. TOMBAUGH, DEAN OF THE COLLEGE OF FOREST RESOURCES, NORTH CAROLINA STATE UNIVERSITY

I am Larry W. Tombaugh, Dean of the College of Forest Resources at North Carolina State University. This statement is offered in my capacity as President of the National Association of Professional Forestry Schools and Colleges (NAPFSC). Our organization represents the 60 universities that conduct this nation's programs of teaching, research and extension in forestry and natural resources. We appreciate the opportunity to comment on the FY1992 budget and on three programs that are essential to our educational and research enterprise.

The first program that I will discuss is one that is particularly critical to our continuing ability to conduct research on existing and emerging forestry problems and to educate the scientists of tomorrow. I am referring to the Cooperative Forestry Research Program, commonly known as the McIntire-Stennis program. This is the backbone of the federal portion of the federal-state partnership in forestry research.

The members of our Association owe the Congress of the United States a great deal of thanks for its support of this program. In FY1988, the Administration recommended that the Cooperative Forestry Research Program be funded at the level of $12,975,000. The Congress was, at that time, keenly aware of the interest and the concern of the American public about the health, vitality, productivity, and diversity of our valuable forest resources. Members of Congress were being bedeviled by conflicting concerns over wetlands, biological diversity, wilderness preservation, threatened and endangered plant and animal species, global warming, tropical deforestation, and the clear need to maintain a healthy forest products industry.

Because members recognized the need for a scientific basis for dealing with these public concerns, the United States Congress appropriated $17,500,000, or $3.5 million more than the Administration request. This pattern has been repeated each year from 1988 to the present. We greatly appreciate your support. Let me spend a couple of minutes telling you what benefits the American taxpayer has received from this support.

Scientists at Mississippi State University are making excellent progress in learning how to effectively regenerate hardwood forest tree species at reasonable cost and in a manner that promotes biological diversity. There are at least 25 commercially important hardwood tree species growing in forests of the southern United States. Demand for these species is increasing rapidly, making the research supported by the Cooperative Research Program at Mississippi State particularly timely by helping to assure adequate hardwood resources in the future.

Researchers at Texas A&M University have produced loblolly pine plantlets using tissue culture techniques. These plantlets are now being tested for their ability to survive on harsh sites in East Texas. These sites have long posed regeneration problems for both forest industry and non-industrial private forest landowners.

A critical problem faced by forest scientists working on the relationship between air pollution and stress on trees is being able to simply and reliably identify and measure stress. Forest scientists at the University of Kentucky are developing a simple diagnostic measure to identify trees that are under stress before visible symptoms appear.

Because of your support, researchers in Maine have been able to help improve the sale of American wood to Europe, holding out the hope that U.S.

producers will be able to capture the value added from the manufacture of wood products.

Forest stand projection models, developed by scientists in Virginia with support from McIntire-Stennis funds, used daily by forest managers, and their use results in lowered costs of wood products for our citizens.

Increased appropriations for the Cooperative Forestry Research Program to South Dakota have enabled the university to greatly expand its effort in tree improvement. The major benefit has been the establishment of genetics test plantations throughout the State. Results from these tests will permit the development of seedling tree stock for the entire State, where incorporation of trees and shrubs into farming practices is critical for the stabilization of agricultural production in the northern Great Plains.

Also related to agriculture is the research in Missouri demonstrating that walnut agroforestry provides economic diversification for farm operators while serving as an effective alternative to the more conventional methods of soil erosion control.

These are just a few examples of the many benefits that derive from the Cooperative Forestry Research Program. In addition, it is fair to say that the majority of the leading forest scientists in the United States -- biotechnologists, soil scientists, entomologists, economists, ecologists, forest products specialists, wildlife biologists, and others -- were able to pursue their graduate studies because of the support provided by this important program.

Public concerns about the forest resource have not gone away over the past few years. Indeed, they have become more sophisticated and they have intensified dramatically. It is important for our nation to continue to build the educational and scientific infrastructure to enable us to respond to rapidly changing problems and concerns.

It is for this reason that we are seeking your help in securing an appropriation for the Cooperative Forestry Research Program of $21,000,000.

Another federal program that is becoming increasingly important to forest scientists is the competitive grants program funded under the National Research Initiative in the U. S. Department of Agriculture. Forest scientists are eligible for funding under several categories of the program. Funds from the National Research Initiative enable us to build upon the base provided by the Cooperative Forestry Research Program to address specific issues of particular scientific importance.

We recommend that the National Research Initiative be funded at the level of $200,000,000 in FY1992. Within this appropriation, we are confident that our forest scientists will be able to compete for as much as 20% of the funding.

Finally, we were most disappointed that the Administration once again did not recommend funding for programs administered under the Renewable Resources Extension Act (RREA). The activities supported by this program allow for new knowledge derived from the Cooperative Forest Research Program and the National Research Initiative to be available "on the ground" so that managers of forests have the best information to maintain or enhance forest health, vitality, productivity and diversity. Activities supported by funds from the Renewable Resources Extension Act enable university forestry and wildlife programs to build upon the outstanding network of people and facilities that has been developed over the years by the Cooperative Extension Services in each state.

We recommend that the Renewable Resources Extension Act be funded at the level of $4,000,000.

In closing, I would be a bit uncomfortable about making specific recommendations for increases in forestry research at a time of fiscal stress if I did not have the benefit of a recent study by the National Research Council of the National Academy of Sciences. This prestigious group completed a landmark study last year which culminated in a report entitled FORESTRY RESEARCH: A MANDATE FOR CHANGE. It makes a very strong case for the need to broaden and deepen forestry research. Please let me quote at length from one part of the report:

> "Federal support for forestry research has been decreasing over the past decade. The two main sources of support for forestry research are the USDA Forest Service and McIntire-Stennis funds administered through the Cooperative State Research Service. Other federal agencies, such as those within the U.S. Department of the Interior, have minor research commitments. Specifically, the Forest Service budget for research has dropped in buying power by 14 percent over the past 10 years. Competitive grants supported by the Forest Service have been eliminated from their budget. McIntire-Stennis funding has been well below the authorization level of 50 percent of the Forest Service research budget. Currently, McIntire-Stennis support is only 13 percent of the Forest Service research budget. Forestry research conducted by industry is also on the decline, with apparently fewer than 12 companies having internal forest biology and management research programs (out of 50 or more companies with substantial forest land holdings). It has been estimated that over the past five years, in-house industry research has decreased by 50 percent."

We believe that our recommendations, which are consistent with those of the National Research Council, are essential to enabling this nation to maintain the scientific capability to improve the quality of our environment while providing the raw materials for one of its most important manufacturing industries.

In summary, we urge your support of the Cooperative Forestry Research Program at $21,000,000; the National Research Initiative in USDA at $200,000,000; and the Renewable Resources Extension Act at $4,000,000.

Thank you for your consideration.

NATIONAL ASSOCIATION OF STATE DEPARTMENTS OF AGRICULTURE

STATEMENT OF JAMES B. GRANT, EXECUTIVE SECRETARY

Mr. Chairman and members of the Subcommittee, I am J.B. Grant, Executive Secretary of the National Association of State Departments of Agriculture. NASDA represents the Departments of Food and Agriculture in the fifty states and the U.S. territories of Guam, American Samoa, Puerto Rico, and the Virgin Islands. I am pleased to make this statement on behalf of our Association.

COOPERATIVE PROGRAMS

NASDA and the State Departments of Agriculture have worked cooperatively with various agencies of the U.S. Department of Agriculture for many years. Cooperative programs, jointly funded and jointly administered, are a cost effective way of carrying out necessary government programs. They have proven successful and efficient over the years. We believe they must continue on a cooperative basis. Most of these program are federally-mandated, consumer protection or service programs that are carried out cooperatively with states and industry.

FOOD SAFETY

NASDA is happy that the Administration is again placing an emphasis this year on food safety, as it did in FY 1991. We have been working closely with the Department of Agriculture, the Environmental Protection Agency and the Food and Drug Administration in an effort to ensure continued consumer confidence in the nation's food supply. We have signed Memoranda of Understanding with USDA and FDA in an effort to coordinate Food Safety matters between the federal and state governments, and hope to sign a similar MOU with EPA soon.

We agree completely with the Administration on its new food safety initiatives for FY 1992, including new monies for the Agricultural Marketing Service ($2.19 million), National Agricultural Statistics Service ($6 million), Economic Research Service ($1.9 million) and Human Nutrition Information Service ($1 million). I will be discussing these departments in more detail later in my testimony.

AGRICULTURE QUARANTINE INSPECTION

As in Fiscal Years 1990 and 1991, the Administration is calling for total user fees in FY 1992 to fund the Agricultural Quarantine Inspection program . This would mean a shift of $108 million from appropriated funds to users fees. This would be an unprecedented move for this APHIS program. We believe the subcommittee should carefully examine this proposal, as it did the last two years, before imposing users fees on a federally-mandated program. This users fee precedent could set an example and thus open the door to indiscriminate use of such a fee.

PSEUDORABIES

States, industry organizations and individual herd owners have been working with USDA for the past five years to eradicate pseudorabies in the United States. Although we have reduced the disease during this time, our work remains incomplete. For Fiscal Year 1992, USDA is proposing to increase pseudorabies funding by only $160,000 to approximately $6.7 million. We believe this is inadequate. NASDA has been working closely with the National Pork Producers Council on this matter and believe that a substantial increase in funding is necessary for a comprehensive eradication program. As we did last year, We urge the subcommittee to make $12.7 million available in FY 1992 to carry out a 10-year eradication program.

IMPORTED FIRE ANT

The Imported Fire Ant continues to plague many of our farmers, yet the Administration is urging a reduction of nearly 60 percent from last year's current estimate. The Administration tried to make a similar reduction in FY 1991, but Congress wisely refused its request. We believe a minimum of $4.2 million in FY 1992 is necessary to control these dangerous pests.

PINK BOLLWORM, GRASSHOPPER AND MORMON CRICKET

Three other important programs, Pink Bollworm, Grasshopper and Mormon Cricket, have been targeted for reductions in FY 1992. The reductions would be disastrous for these programs. We urge you to continue to fund this program at no less than the current estimated level of Fiscal Year 1991--$1.1 million for Pink Bollworm and $8.5 million for Grasshopper and Mormon Cricket, including $5 million for the Grasshopper reserve fund.

RUSSIAN WHEAT APHID

The FY 1991 estimate for spending on the Russian Wheat Aphid is $2.4 million. The administration has chosen not to fund this important program in FY 1992. This aphid is a very serious problem, one for which there is no short-term solution for wheat and barley growers in the southwest and west. If left uncontrolled, it can virtually destroy a major part of the Western wheat crop, to the detriment of our already-hard-pressed farmers.

The Russian Wheat Aphis is an invading pest of wheat, barley and other small grains currently in 17 states (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming) and in Canada. This pest has become a significant economic threat to agriculture, affecting wheat and barley. RWA can cause up to 70 percent yield losses in some areas. Yield losses and control costs exceeded $52 million in 1987, $120 million in 1988 and $130 million in 1989. Estimates of future damage are even greater as the pest becomes established and environmental conditions change to enhance severe aphid infestation.

In 1988, under the auspices of NASDA, a strategy, entitled the, "National Russian Wheat Aphid Integrated Pest Management Program" (NRWA-IPM) was developed to reduce the economic losses in wheat, barley and other small grains caused by the RWA. We supplied members of this subcommittee with copies of a report on this program last year. An updated current report is attached for your use. A maximum redirection of resources has been made by both federal and state agencies, yet resources are inadequate to address this monumental pest problem in a holistic approach and timely fashion. An immediate need exists to implement the NRWA-IPM program.

In 1989, the Russian Wheat Aphid Technical Advisory Group determined that $9.5 million per year for 10 years is needed to implement essential components of the NRWA-IPM program. We supported this recommendation then, and we continue to support it. A national Russian Wheat Aphid Steering Committee has been formed, as directed by Congress. This committee is providing cooperation and oversight for the U.S. Department of Agriculture and state programs.

Although we are aware of the severe budgetary restraints facing our country, we believe this $9.5 million appropriation would, in the long run, save American taxpayers hundreds of millions of dollars and perhaps save the wheat industry.

ANIMAL DAMAGE CONTROL

The administration's proposed FY 1992 budget for the Animal Damage Control Program, $20.4 million, fails to provide the necessary funding for the wide spectrum of services required of the ADC. We support the restoration of funding to at least the FY 1991 budget estimate of $24,588,000.

The purpose of the ADC program is to control wildlife and pest damage to agriculture, other wildlife, aquaculture, forest, range and other natural resources; to protect public health and safety through control of wildlife-borne diseases, and wildlife control at airports. Many sectors of agriculture, wildlife management and public health and safety rely heavily on the ADC program. These services are provided through a partnership between federal, state and private interests.

The proposed 22 percent budget reduction will render the program relatively ineffective. Since the transfer of the program from the Department of the Interior to USDA, severe budget constraints have caused ADC to delay important investments in employee training and recruitment, equipment rotation and replacement, and new methods research. Unless these investments are quickly made, the ADC program will be severely limited in its ability to provide long-term services to its wide spectrum of recipients.

The ADC program has developed a range of wildlife control tools. Some of these tools involve methods that are being criticized by some as socially unacceptable. Research into the development of effective alternative tools has been hit hard because of budget limits. This research must be funded adequately if the mission of ADC is to be met

Again, we urge you to appropriate monies in FY 1992 at least equal to the current budget estimate for FY 1991; and that consideration also be given to adequate funding for operations personnel, equipment and research.

HONEY BEE PESTS

The emergence of honey bee pests such as Varroa and tracheal mites and the arrival of Africanized honey bees (AHB) threaten the viability and profitability of the U.S. honey bee industry. These problems also pose a significant threat to an estimated $19 billion worth of agricultural commodities that depend directly on or benefit indirectly from honey bee pollination.

Currently, no comprehensive national strategy exists to deal with the threat posed by emerging honey bee pests. In addition, no federal regulations govern the interstate movement of honey bees and state regulations are inconsistent.

Honey bee industry groups working in cooperation with the National Association of State Departments of Agriculture and the U.S. Department of Agriculture, assessed the threat of honey bee pests to the beekeeping industry and to U.S. agriculture. These industry groups and agencies propose the implementation of a national initiative that would include the following components:

- National Honey Bee Certification Standards,
- Enhanced Research,
- Extension programs to inform beekeepers on the use of new beekeeping technologies; and
- Public education to mitigate the public safety threat posed by AHB.

The U.S. Department of Agriculture allocated approximately $5.8 million for honey bee research, extension, and honey bee pest control programs in Fiscal Year 1991. Extension services (ES) provides information transfer ($100,000 in FY 1991), APHIS manages some honey bee pest activities ($500,000 in FY 1991), and ARS conducts honey bee research, ($5.2 million in FY 1991). The states have provided an estimated $8.2 million to fund apiary inspection and honey bee specialists who provide extension and/or research services.

For FY 1992, we urge you to appropriate no less than the monies provided in FY 1991 for the current honey bee program -- $5.8 million, plus an additional $2.8 million to support the beginning of a five-year, $17 million national honey bee initiative.

OTHER APHIS PROGRAMS

The Administration also is calling for reduction in other APHIS programs that we consider very important to agriculture. We therefore ask that you increase funding for the boll weevil program in FY 1992 to the current 1991 estimate of $13.1 million, $2 million above the Administration's request. For the Animal Health Compliance Enforcement program, we urge an appropriation of $12.4 million, the same as the current estimate for FY 1991. In addition, we support $12.5 million for the Import-Export Inspection program in appropriated funds only.

INTEGRATED PEST MANAGEMENT

We believe Integrated Pest Management is a good approach to ensure a healthy environment while, at the same time, keeping U.S. agriculture competitive. IPM is based upon sound biological and ecological principles. Equally important, IPM programs have proven beneficial in significantly reducing pesticides and increasing net profit for American agriculture, while maintaining quality and yield. We urge continued Congressional support for these programs and sufficient monies to carry out expanded research and development. The Administration is proposing $5 million for FY 1992.

IR-4 PROGRAM

The IR-4 minor use program is the national agricultural initiative for the clearance of pest control materials for use on minor crops or minor uses on major corps. The current (FY91) funding for IR-4 is $3 million from USDA-CSRS (primarily from the Special Research Grants Program). Additionally, the USDA-ARS Minor Use Program is funded at $1,133,000. The Administration's proposed budget for FY92 will increase total minor use funds by $1 million (to $5,133,000), with CSRS contributing $3 million and ARS contributing $2,133,000. However, this addition does not approach the funding level needed to provide the resources to meet the challenge of pest management on minor crops. IR-4 needs stable funding of $12 million (CSRS and ARS combined) per year to (a) eliminate a backlog of 1,600 priority clearance projects on food crops (existing funding permits completion of about 100 projects each year, while IR-4 receives around 200 new project requests per year); (b) maintain approximately 1,000 key minor uses that will otherwise be lost by 1997 through reregistration mandated by FIFRA 88; (c) adequately fund biorational pest control agents for IPM compatible pest management practices on minor crops; and (d) reestablish the research program to support pesticide registrations on ornamental commodities. Minor crops represent 37 percent of the value of all agricultural crops produced in the

U.S. We urge the subcommittee to establish stable funding for IR-4 of $12 million per year in order to adequately serve the needs of the $20 billion minor crops agricultural industry.

AGRICULTURAL MARKETING SERVICE

In my introductory remarks, I mentioned the Food Safety initiatives proposed by the Administration in which we concur. One of those initiatives includes $21.9 million for the Agricultural Marketing Service to administer a national pesticide residue monitoring program--an increase of $10 million over the FY 1991 current estimate. AMS would continue contracting with states to sample and test commodities within market distribution channels for pesticide residues. NASDA believes this program greatly benefits consumers and urges the subcommittee to fully fund this program at the requested level of $21.9 million.

We are very pleased that the Administration has requested funding for Payments to States program, the Wholesale Market Development program and the Federal Seed Act in FY 1992, as it did in FY 1991. It has been the practice of previous administrations to zero out funding for these programs. We believe these programs are necessary to support the overall basis of agriculture and have always maintained a vital cooperative endeavor.

We respectfully ask that the Payments to States program (Federal-State Marketing Improvement Program) be funded in fiscal year 1992 at $1.8 million, an increase of $900,000 over the Administrations proposal. It is our understanding that 15 or more projects will be funded by mid-April. We applaud the subcommittee's continued interest in this valuable program. We believe these monies are effectively used by the states through their matching grant programs.

Another important program for states is the Wholesale Market Development program. We urge the subcommittee to fund this program at $3 million in FY 1992, $900,000 over the amount requested by the Administration. We believe additional resources are needed to partly compensate for past inflationary erosion of the program's support base and to provide the additional means to address urgent research into maintaining efficient wholesale food marketing in our major urban and rural areas.

The Federal Seed Act was designed in part to ensure quality and prevent mislabeling of seed in interstate movement. We believe funding to support the Federal Seed Act is vital since states do not and cannot control interstate shipments on sales of seed. We urge you to appropriate $1.094 million in FY 1992 for the Federal Seed Act, the same amount approved in FY 1991 and again being requested by the Administration.

HUMAN NUTRITION INFORMATION SERVICE

NASDA concurs with the Administration's request for a $2.8 million increase for the Human Nutrition Information Service to $12.7 million. $500,000 of this money will be used to fully fund HNIS participation in the USDA Pesticide Data program to $1 million. As one of the four key agencies, HNIS will continue to develop a linkage of food intake data on individuals through an expanded Food Grouping System with pesticide residue data provided by other agencies in the program.

ECONOMICS AND STATISTICS

As mentioned earlier, NASDA is in complete agreement with the Administration in support of new food safety initiatives. We therefore urge the subcommittee to appropriate $152.5 million for Economics and Statistics in FY 1992, as proposed by the Administration. Of this amount, we concur with USDA's proposals of $62.9 million for the Economic Research Service--$8.1 million above the current estimate for 1991, 87.1 million for the National Agricultural Statistics Service--$10.4 million above the FY 1991 estimate, and $2.5 million for the World Agricultural Outlook Board--$300,000 above the FY 1991 estimate.

In regard to the request for increased appropriations for ERS, it should be pointed out that the Administration is budgeting $2.5 million for support of its Food Safety Initiative. This increase will provide analytic support for USDA food safety and pesticide assessment activities. It will include development of data on chemical use in the marketing sector, the evaluation of the costs and benefits of alternative public and private food safety control strategies, and will provide an assessment of the impact of pesticide regulation and residue control programs on the safety of the public food supply. We believe these funds will be well used.

The request for increased funding for the NASS program will allow that agency to expand its current survey of pesticide use data to provide more useful and current data in support of the Food Safety Initiative, develop and test a survey of mandatory applicator records of the utilization of restricted use pesticides, and expand and improve data collection on fruits, vegetables and other crops. These are all worthwhile programs and, in our opinion, deserve to be fully funded.

SOIL CONSERVATION SERVICE

NASDA urges the subcommittee to appropriate at least $809.3 million in FY 1992 for the Soil Conservation Service, the current estimate for FY 1991. We believe this is an extremely important program, and should be funded at no less that the amount proposed by the Administration.

FOOD SAFETY AND INSPECTION SERVICE

Grants to States (Cooperative Meat and Poultry Inspection Program)

The Food Safety and Inspection Service has the authority to approve state meat and poultry inspection programs for products traveling in intrastate commerce. FSIS reviews state inspection programs to assure standards at least equal to federal standards are applied to meat and poultry plants under state jurisdiction. For state inspection programs, USDA contributes up to 50 percent of each state's cost through their Grants to States program.

In FY 1991, the Administration allotted $38.5 million for this program, $900,000 over the $37.6 million expenditure for FY 1990 and a percentage increase of only 2.4 percent. This was one of the smallest increases in the past 10 years and well below the $41.3 million requested by participating states to effectively perform their duties. At that time, state pay raise estimates were averaging 4.8 percent.

This is grossly unfair to state programs and can only give them an incentive to turn these programs back to the federal government, as the state of Maryland recently did.

For FY 1992, we urge you to appropriate at least the 4.8 percent increase states will be passing along to their employees. This is more in line with the average increases of the past 10 years and should enable these states to continue working in a cooperative manner with the federal government. We believe an appropriation of not less than $40.4 million is needed in FY 1992 to secure the services of the states.

FOREIGN MARKET DEVELOPMENT PROGRAM

NASDA has been cooperating with the U.S. Department of Agriculture's Foreign Agricultural Service for many years in expanding our overseas markets. The biennial NASDA National Food and Agriculture Exposition, an excellent example, provides American food and agricultural producers with a unique opportunity to sell U.S. food, beverage, seed and nursery products to overseas buyers--thus helping to reduce deficits with our trading partners and making agriculture and the food industry in the U.S. more profitable. It is a prime example of what can be accomplished through a cooperative working agreement between an agency of the federal government and the states. FAS has been an invaluable partner in this effort. We urge you to appropriate $115 million for FY 1992--$5.5 million more than the Administration's request of $109.5 million for the Foreign Agricultural Service. We believe this increase is justifiable because of the many new responsibilities assigned to FAS in recent years through the passage of the Food Security Act of 1985 and the Omnibus Trade Bill of 1988.

Four of NASDA's,regional agricultural trade associations also participate with FAS in foreign market development. They include the Eastern U.S. Agricultural and Food Export Council, Inc. (EUSAFEC), Mid-America International Agri-Trade Council (MIATCO), Southern United States Trade Association (SUSTA) and Western U.S. Agricultural Trade Association (WUSATA). These regional trade associations are constantly promoting U.S. agricultural commodities abroad and are a great asset to the export of U.S. produced food commodities.

Funds to support foreign market development must be maintained at an appropriate level to allow FAS to operate and staff its overseas offices and provide adequate resources to market cooperators. These offices must be capable of continuing and expanding their work in market research, breaking down non-tariff trade barriers, and providing U.S. companies with foreign sales leads. An FAS appropriation of $115 million in FY 1992 would help maintain an adequate foreign market development program.

MARKETING PROMOTION PROGRAM

Overall market development activities have been enhanced by the Marketing Promotion Program (MPP). MPP funds have enabled increased export promotion activity in areas where U.S. commodities have been adversely affected by unfair trade practices. We urge you to appropriate $200 million for the MPP program. We believe the success achieved by MPP program justifies the monies appropriated.

EXPORT ENHANCEMENT PROGRAM

The 1990 Farm Bill reauthorizes the Export Enhancement Program and reemphasizes its goal of discouraging the unfair trade practices of competitors by making U.S. agricultural commodities competitive in the world market. We request that the Export Enhancement Program be funded at the level recommended in the President's budget.

FOOD AND DRUG ADMINISTRATION

Since 1973, the Food and Drug Administration has contracted with State Departments of Agriculture and other state agencies for the performance of food, feed and medical equipment inspections by state personnel. FDA contracts with states are funded through the agency's field operations budget. In FY 1991, this important program was funded at $5.4 million. We request that funding for FY 1992 be increased above that appropriated in FY 1991 to take advantage of lower state costs.

CONCLUSION

In conclusion, Mr. Chairman, we want to compliment the subcommittee for providing the necessary funds in the past to keep American agriculture the most productive in the world. We urge you to do so again in Fiscal Year 1992.

Thank you for allowing me to present this testimony to you today. I would be glad to answer any questions.

STATEMENT OF THE NATIONAL ASSOCIATION OF STATE FORESTERS

The National Association of State Foresters (NASF) represents the directors of the state forestry agencies for each state and three territories. Collectively, the State Foresters oversee the management of 80% of the nation's forested lands -- about 500 million acres. NASF thanks the Committee and Congress for continued support and funding for forestry programs in fiscal year 1991 and in previous years.

A primary goal of NASF is to ensure that stewardship practices are carried out on nonindustrial private forest lands (NIPF), while at the same time increasing forest productivity. The nation's forestlands are a renewable natural resource if managed wisely and with the future in mind. There are several federal programs in place working towards this goal that Congress has continued to support.

For the first time in many years, forestry issues are receiving significant attention from the Administration. As you know, President Bush has proposed an ambitious, new multi-year program called *America the Beautiful*. The goal of this program is to plant an additional one billion trees a year throughout the nations cities and communities and on rural lands.

Consistent with this new initiative, funding has been proposed for several programs important to achieving balanced forest resources that will meet current and future demands of the nation's citizens. These include the following: Agricultural Conservation Program (ACP), Conservation Reserve Program (CRP) and Forestry Incentives Program (FIP). NASF supports the levels the Administration has proposed for this programs in FY 1992.

However, the Administration has proposed eliminating all funding for the Rural Community Fire Protection Program (RCFP), the Renewable Resources Extension Act (RREA) and McIntire/Stennis research funding. These are important programs, deserving recognition for the role they play in assisting in the management of our forest resources.

($ in millions)

	Enacted FY91	Admin FY92 Proposal	NASF FY92 Proposal
ACP	189.154	183.240	183.240
CRP	1.307 bil	1.790bil	1.790bil
FIP	12.381	12.446	12.446
RREA	2.750	0	7.000
RCFP	3.4882	0	7.000
Mc-Stennis	17.726	12.975	25.000
NRI	73.000	125.000	200.000*

** at least 20 percent of the National Research Initiative funds should be for forestry research projects*

Rural Community Fire Protection Program (RCFP)

The RCFP is a continuing priority of NASF's. As more and more people leave urban areas to build homes in forested rural settings, there is increasing concern for the safety and protection of their lives and property. Fire protection for improvements in rural areas will depend increasingly on training volunteer and small community fire departments to fight both wildland and structural fires. The Rural Community Fire Protection Program provides financial and technical assistance to train, organize and equip rural fire departments.

In the past, available funds have not been able to meet the more than one out of ten requests for assistance. To better protect and reduce the loss of life and property, NASF strongly recommends RCFP be funded at its full authorization level of $7 million in FY 1992.

Renewable Resources Extension

The Renewable Resources Extension program appropriation is targeted to support the nation's need for a continuous supply of forest resources, both commodity and non-commodity. It is a necessary link in the transfer of needed forest technology to nonindustrial private landowners as well as industry and business enterprises involved with management. The Extension System's renewable resources programs serve land owners, managers and users of forest, range and related lands. Education is a critical element to achieving a sustainable , productive environment on private lands.

Although this program has been funded at only a fraction of its authorization level, RREA appropriations have leveraged over $40 million of state and local resources for forest, range, wildlife and recreation education programs. NASF recommends that the Renewable Resources Extension program be funded at $7.0 million in FY 1992.

McIntire/Stennis Research

Research and newly improved technologies are critical to increasing the efficiency and productivity of forest management and development. McIntire-Stennis Research funding provides assistance on a matching basis to land-grant colleges, agricultural experiment stations and other state-supported colleges or universities offering forestry education. The program recognizes the needs of individual states and regions which depend primarily on state universities and the USDA Forest Service to provide research and a technology base. This unique state-federal-university partnership in forestry research has added significantly to the overall productivity and health of our nation's forests.

NASF recommends that funding for this program be increased to $25 million in FY 1992. We believe this level is needed to insure the continued effectiveness of this program to significantly strengthen the role of technology in increasing forestry competitiveness while providing greater non-commodity resources from our forestlands.

Agricultural Conservation Program (ACP)

The ACP provides cost-share assistance to landowners implementing practices that prevent soil erosion, conserve water quality and enhance forest resources. Under the forestry section of the ACP, almost 10,000 landowners in FY 1990 were assisted with tree planting and seeding on 127,799 acres and 43,123 acres received timber stand improvements. Federal cost-share assistance to landowners made available for these forestry practices was approximately $10.3 million in FY 1990. Although only a small percentage of the total ACP appropriation, the accomplishments that these forestry practices make towards resource conservation are consistently substantial.

NASF supports the Administration's recommendation that ACP be funded at $183.240 million in fiscal year 1992.

Forestry Incentives Program (FIP)

It is a fact that more acres are being harvested than reforested in many parts of the country. It is not difficult to identify the obstacles a small forest landowner faces when considering reforestation: significant cash outlays, high interest rates, long-term cash commitments, cyclic markets and little, if any, investment protection.

Although a relatively small program, FIP has helped in removing some of these obstacles to landowners, at the same time improving forest resources and helping to assure future timber supplies. In FY 90 almost 8,000 landowners entered into cost-share agreements for reforestation and timber stand improvement under FIP. Over 219,900 acres of trees were planted and 33,199 acres of timber stands were improved.

NASF supports the Administration's proposed funding level of $12.4 million for the Forestry Incentives Program in fiscal year 1992.

Conservation Reserve Program

The Conservation Reserve Program is responsible for the planting of over 2.2 million acres of trees in this country since 1986. The State Foresters are proud to be a part of this effort. However, through FY 1990 these acres amount to only about 6.4 percent of total acres contracted under the CRP. The program has demonstrated it's cost-effectiveness in reducing both soil erosion and surplus agricultural commodities. In addition, acres planted to trees will provide long-range timber production and other environmental benefits for many years to come. NASF supports continued funding for the Conservation Reserve Program at a level that will achieve the 12.5 percent tree-planting goal mandated by Congress.

National Research Initiative

An increasingly important program to forest scientists is the competitive grants program funded under the National Research Initiative within the U.S. Department of Agriculture. The Initiative, recommended by the National Academy of Sciences, brings new Federal support for research awarded on a competitive basis recognizing that there are major untapped opportunities in modern biological, environmental and engineering sciences to address problems most critical to agriculture and forestry. Research activities will be directed into areas that will enhance understanding of how agriculture and forestry can better manage natural resources and protect the environment. These funds provide a stable and ongoing base program that is able to address specific forest science issues and concerns. NASF recommends that the National Research Initiative be funded at $200 million FY 1992 with at least twenty percent of these funds directed to forestry research projects.

Thank you again for the opportunity to share our views and recommendations.

STATEMENT OF THE NATIONAL CATTLEMEN'S ASSOCIATION

The National Cattlemen's Association (NCA) takes a great interest in the development of the budget for the U.S. Department of Agriculture and the subsequent appropriation of funds for programs carried out by it's numerous agencies.

Following are the views and policies of the NCA on certain programs at the USDA. We urge your consideration of these views and requests.

RESEARCH AND EDUCATION
Cooperative State Research Service (CSRS)

NCA has identified the following research projects as top priority for the beef cattle industry. Beef producers have provided significant support (check-off dollars) for these projects in hopes that federal dollars can be appropriated as Special Grants to balance the funding needs.

The combined results of the three projects will enable cattlemen to efficiently produce lean beef products while maintaining taste qualities.

Special Grant 1:

Objective:	To develop instrument assessment of carcass characteristics utilizing ultrasound technology.
Importance to Industry:	An instrument grading machine functional at the point of slaughter will immediately determine true value differences between individual carcasses; provide distinct market incentives for producing lean, palatable beef products; and enable the industry to implement improved, efficient technological procedures during slaughtering/processing (i.e. hot fat trimming, hot carcass deboning, mechanical deboning).
Research Leader:	University of Illinois, Dr. Jan Novakofski
Funding:	Five year project totaling $5 million Private industry support $200,000/year for 5 years = $1 million Total appropriation request = $4 million Special Grant Annual Request = $800,000/year FY 92-96

Special Grant 2:

Objective:	To identify through bovine genome mapping major genes effecting the palatability/quality characteristics of beef carcasses.
Importance to Industry:	Once major genes have been identified, producers will be able to analyze a tissue and/or blood sample from a newborn calf and determine its carcass quality potential. This will enable the producer to better match growing, feeding and marketing schemes with the genetic potential of the calf.
Research Leader:	Texas A&M University, Dr. Jeremy Taylor
Funding:	Five Year project totaling $1.65 million Private Industry Support $150,000/year for 5 years = $750,000 Total Appropriation Request = $900,000 Special Grant Annual Request = $180,000/year FY 92-96

Special Grant 3:

Objective:	To quantify/qualify carcass trait information on live yearling breeding bulls.
Importance to Industry:	It will improve current National Sire Evaluation Programs, enabling producers to select breeding bulls whose future offspring will produce carcasses uniform in muscle, fat deposition, and carcass quality.
Research Leader:	Cornell University -- Dr. John Pollack Iowa State University -- Dr. Richard Willham University of Georgia -- Dr. Larry Benyshek
Funding:	Four year project totaling $1.1 million Private Industry support $150,000/year for 4 years = $600,000 Total Appropriation Request = $500,000 Special Grant Annual Request = $125,000/year FY 92-95

NCA supports the National Research Initiative (NRI) and proponents efforts to seek second-year funding levels of $200 million. NCA appreciates the administration's proposed $125 million budget for the Initiative and finds the $50 million annual increment increases fair and encouraging. NCA also supports CSRS efforts to administer the NRI funds through the competitive grant system.

NCA supports the President's FY 92 budget request to include in the NRI a $25 million competitive program to fund, on a matching basis, the renovation and construction of facilities for agricultural sciences and related fields.

NCA has noted the Administration's recommendations to discontinue special grant funding for Animal Health and Disease. Cattlemen believe this would be a grave mistake for producers and consumers alike. Suggestions to fund Animal Health and Disease through the Animal Science Competitive Grants program would also be a mistake. If this occurs, the remaining disciplines of Animal Science research would not grow any stronger than they have under previous budgetary restraints. In light of these concerns, NCA encourages Congress to support the Animal Science Competitive Grants Program as proposed in the National Research Initiative and restore Animal Health and Disease Special Grants and 1433 funds.

In recognition of the continuous support for 1433 Formula Funds and the Animal Health and Disease Special Grants by Representatives Virginia Smith (R-NE) and Jamie Whitten (D-MS), the National Cattlemen's Association presents the following resolution for consideration by the appropriations committee:

"WHEREAS, funds for research on animal health and disease research have been provided principally through two programs, the 1433 Formula Funds for Animal Health and the Special Grants for Animal Health and Disease; and

WHEREAS, Representatives Virginia Smith (R-NE) and Jamie Whitten (D-MS) have been instrumental in gaining Congressional approval of funds for these programs annually,

THEREFORE BE IT RESOLVED, that the National Cattlemen's Association recommends naming the 1433 Formula Funds f Animal Health after Representative Virginia Smith and Representative Jamie Whitten in recognition for their contributions to the advancements in knowledge about control of animal diseases."

Agricultural Research Service (ARS)

NCA supports the proposed budget increases for ARS research activities of $39.1 million. ARS has clearly established itself as a problem-solving research agency, responsive to the needs of agriculture. However, NCA also recognizes the continuing inequity in the ARS budget between plant science and animal science.

To address this concern, the NCA encourages members of the agriculture appropriations subcommittee to support, with increased funding, the following ARS research needs in FY 92:

Gene Mapping and Evaluation:	Additional resources are needed in this area to expand the ongoing ARS program of research on beef cattle. The current research on mapping is aimed at developing maps of DNA marker genes that influence traits of economic or biological importance.
Plum Island Animal Disease Center:	NCA supports the renovation and construction of all facilities necessary in order to conduct foreign animal disease research pertinent to the beef cattle industry. Of particular interest and priority is research associated with the preclinical diagnostic testing and prevention of sheep scrapie and bovine spongiform encephalopathy.
Large Animal Necropsy Incinerator Facility, National Animal Disease Center, Iowa	NCA supports the appropriation of funds supporting the construction of the proposed new necropsy/incinerator facility.
Range Plant Profiles (RAPPS):	Additional support for the Southern Plains Range Research Station, Woodward, Oklahoma, and Northern Plains Range Research Station, Mandan, North Dakota. NCA supports the genome mapping of the basic physiology of warm and cool season range grasses through the improvement of the RAPPS model. NCA requests that $300,000 would be allocated to the northern site (Mandan) and $400,000 to the southern site (Woodward).
Fort Keogh Livestock Research Laboratory, Miles City, MT:	Current research at Fort Keogh is a blend of basic and applied and Range experiments designed to elucidate the functional aspects of beef cattle production from a rangeland forage base. The broad scientific disciplines included in this integrated approach are range ecology ecophysiology, range nutrition, beef cattle genetics, and reproductive physiology. NCA has recognized and fully supports the FY 92 budget request for the Fort Keogh Laboratory.

Extension Service (ES)

NCA supports the ES request for a $5 million appropriation to organize and conduct an Integrated Management Systems (IMS) Program. IMS will establish a research and education programs for Integrated Crop Management as outlined in Chapter 2, Section 1627, Sustainable Agriculture of the 1990 Farm Bill.

NCA supports the ES in expanding their role in producer/consumer water quality and food safety education. NCA fully supports the $15.5 million budget request to support the water quality program. NCA also supports funding for the Food Safety initiative, but questions the effectiveness of a national program with a $2 million budget. NCA hopes that the food safety program can be expanded in the future with adequate funds of support.

NATURAL RESOURCES AND ENVIRONMENT

Soil Conservation Service (SCS)

NCA urges increased appropriations for the Range programs within the Soil Conservation Service. The number of range conservationists and technical personnel within SCS has significantly declined since 1985. The increasingly demanding job of implementing the conservation provisions of the 1985 and now 1990 Farm Bills has forced SCS to pull manpower and financial resources from other traditional programs, particularly from range programs.

Over half of the U.S. land mass is used as pasture or range. The millions of private landowners who graze livestock on these lands need and deserve the conservative assistance of SCS.

MARKETING AND INSPECTION SERVICES

Animal and Plant Health Inspection Service (APHIS)

Brucellosis:	NCA is in general agreement with the budget for APHIS as recommended. We are pleased with the significant progress that is occurring with the Brucellosis eradication program. There are no "C" class states and only 4 "B" class states, with the remaining being either "A" or "Free". It is important to maintain adequate funding to complete the brucellosis eradication program. As we seek to complete this program and clean up the last vestiges of this disease, we must not become complacent.
Tropical Bont Tick:	NCA urges that funds be made available for a pilot program for the eradication of the tropical bont tick from the Caribbean. APHIS was originally in a cooperative program with USAID. Funds for this program were originally earmarked by Congress in 1986. The APHIS and USAID subsequently developed a pilot project. However, later differences developed between the two agencies and in 1990 USAID de-obligated the funds of $2 million and returned it to the Treasury. We recommend that these funds be reappropriated to APHIS in order for it to undertake a cooperative program with the University of Florida using a patented trick decoy system to eradicate the tropical bont tick from the Caribbean.
Scrapie:	NCA supports the efforts of the sheep industry to eradicate scrapie. The sheep industry entered into the negotiated rule making process with USDA-APHIS recently to seek a cooperative way to eradicate scrapie. This effort produced a proposal to certify scrapie-free flocks and an incentive depopulation program.
Core Funding:	NCA supports the concept of core funding at APHIS. We adopted the following resolution at our recent convention:

"WHEREAS, APHIS is the backbone of providing animal producers with regulatory support to maintain the health status of the U.S. food animal industries; and

WHEREAS, the present project-by-project line item budget severely restricts APHIS from the continuing accomplishment of its tremendous responsibility,

THEREFORE, BE IT RESOLVED, that the National Cattlemen's Association supports APHIS in development of a core funded, mission oriented budget for the continued protection of the nation's animal population."

While this issue is not being addressed with the 1992 budget, we urge the committee to support core funding budgeting in the future.

AGRICULTURAL MARKETING SERVICE (AMS)

Easy access to available price and volume information by producers is critical for maintaining a competitive, free-market system. NCA supports AMS efforts to increase reporting of contracted and formula priced cattle consistent with changing production and marketing procedures in the industry.

NCA encourages AMS to continue increased efforts to expand verified reporting of boxed beef sales and to begin reporting a price (or index) for Boxed Beef Carcass Units (BCU's).

Packers and Stockyards Administration (P&SA)

The beef industry is in the midst of significant structural change. While it appears that these trends are the result of economic forces, concerns have been raised about the evolving structure of the industry and continued competitive pricing of beef products. Ongoing surveillance and improved information is necessary because of the increased potential for price manipulation or selective price reporting.

NCA supports the Administration's proposal to increase P&SA funding to levels consistent with continuing the responsibility for ensuring that livestock markets are free from unfair or deceptive practices.

ECONOMICS

Economic Research Service (ERS)

Current, relevant and unbiased research is critical to entrepreneurial producers' financial survival in the evolving economic environment. NCA supports the proposed funding level for the ERS, with the provision that the ERS actively seek and adhere to input and advice from the beef cattle industry defining relevant research topics. ERS is encouraged to evaluate the current beef cattle cost-of-production series, to modify the series consistent with current production practices and to publish the series on a more timely basis. Initiation of an away-from-home data series for meat consumption is requested.

National Agricultural Statistics Service (NASS)

The beef cattle industry is the largest sector of U.S. agriculture. In the absence of government income assistance programs, beef cattle producers bear the full impact of decisions based on faculty or ill-timed reports. Accuracy and timeliness of NASS livestock and crop reports are crucial to cattlemen making major business decisions.

To address the above concerns, NCA requests that NASS:

1. maintain existing data series
2. consider adding or amending data series to reflect changes within the industry
3. strive to improve the accuracy and timeliness of all reports.

Food Safety Inspection Service (FSIS)

NCA continues to oppose the imposition of user fees for federal meat inspection programs. We contend that programs mandated by law to be conducted on behalf of the public benefit should be funded with public monies.

INTERNATIONAL PROGRAMS

Foreign Agricultural Service (FAS)

NCA recognizes the many good services provided by the FAS that enhance our ability to export our products.

We support the funding of the Foreign Market Development Cooperator Program and the Market Promotion Program (MPP). The beef industry has been a beneficiary of these programs through the U.S. Meat Export Federation (USMEF). Exports of beef have increased significantly in recent years, mostly to Japan. The USMEF has many effective market development and promotion programs in Japan and other countries, funded by Cooperator, MPP and private sector funds.

STATEMENT OF THE NATIONAL CONFERENCE OF STATE LEGISLATURES

PROPOSED BUDGET LEVELS FOR RURAL DEVELOPMENT PROGRAMS

The National Conference of State Legislatures (NCSL) serves the legislators and staffs of the nation's 50 states, its commonwealths and territories. The nation's legislators are making a commitment to rural development programs and consequently, advocate an equally firm federal role in this area.

Economic downturns in rural regions are the result of major shifts in population from rural to urban areas over the last two decades, thus forcing these communities to face the problem of continuing services to a declining population with an eroding tax base. Three programs under the Agriculture Department's Rural Development Administration that states are using to fight these downturns are: water and sewer/waste, business and industry and community facilities. The value of these programs is enormous. The activities are helping to revitalize many rural areas by generating employment; they are an excellent form of economic development.

As a result of the community growth that these programs generate, NCSL must support funding at no less than current levels for programs that promote development in rural areas. NCSL appreciates the President's desire for budget austerity, but austerity should not be achieved at the expense and livelihood of rural America. Rural Development Administration funds more than prove their worth by creating employment as well as retaining existing jobs. Funds are also making communities more livable by cleaning up water systems and building health and safety facilities for its citizens. These infrastructure improvements would not be possible without federal dollars.

BUDGET CONCERNS

NCSL supports a continuation in 1992 of budget authority with adjustments for inflation for water and waste, business and industry and community facilities functions. Without the funding that these rural development programs provide, many rural communities could be without safe drinking water. Moreover, we would be leaving the health and mental health needs of citizens unattended, as well as compelling businesses to leave rural areas for communities with a better infrastructure. It is important that concerns about budget austerity not sacrifice the well-being of rural citizens. The return on the investment in these programs is phenomenal; employment growth from business loans and jobs generated from water and waste construction are evidence of this. Further, the investment results in greater community economic growth, safer water and sewer systems and community facilities to serve the needs of the population.

Further, the federal dollars help to supplement aggressive actions taken by states to improve the conditions in rural areas. Many legislatures are supporting innovative rural economic development activities and working to make their communities more attractive to industry. The federal government must match the state effort.

THE NEED FOR RURAL DEVELOPMENT

States are often plagued with economic downturns in several rural industries including agriculture, mining, forestry and manufacturing. Some of the other problems that are plaguing rural economies are a lack of infrastructure, lack of adequate health care, education and housing. These problems result from the fact that millions of rural residents have faced loss of jobs and farms, while millions more have fled to the cities. The citizens who remain in these areas and can maintain some type of employment, become relegated to income levels that are so low, they cannot draw themselves out of poverty. Further, those who remain often do not receive the same services as city dwellers. Community facilities such as hospitals and upgrading of water and waste systems are vital to these communities.

Rural America lags far behind their urban counterparts in the area of employment. The region is restrained by the fact that industry is not moving their advanced functions such as research and development to rural America. Therefore, factors that normally would help to increase the tax base are non existent. Consequently, business and industry loans become vital to these areas in order to retain existing jobs.

RURAL DEVELOPMENT ADMINISTRATION PROGRAMS

Under the Department of Agriculture's Rural Development Administration, funds are used to reverse the rural dilemma. They can be used to develop **community facilities** in towns of not more than 20,000 people. States find the loans that are available to public entities such as municipalities and counties very useful. The construction or improvement of community facilities for health care, public safety (fire stations) and public services (courthouses, schools, libraries, airports, industrial parks) bring necessary services to the areas.

Water and waste loans and grant funding are also important to states. Funds made available to municipalities, counties, special purpose districts, Indian tribes and not for profit corporations prove useful in the construction or repair of the rural water supply and distribution facilities. Updating structures such as sewer lines, treatment plants, storm sewer facilities, sanitary landfills and incinerators are necessary for a normal life.

The support that **business and industry** funds give to individuals, public and private organizations and Indian tribal groups is extremely significant to states. The funds finance business and industrial construction, modernization and pay for the purchase and development of land or easements, as well as supply working capital which helps to maintain jobs in the individual states.

STATE ACTIVITIES

Several states are realizing the benefits of these Rural Development Administration programs. In the towns of Freeport, Century and Penney Farms, **Florida**, water and waste funding is being used to upgrade waste water treatment systems. Monies build new sewer collection systems, replace water storage tanks and expand water and sewer facilities. Community facilities' resources in Lakeside and Marion, Florida are helping to expand fire stations, purchase new fire equipment and build wings on to mental health institutions. Finally, business and industry loans are helping to expand existing manufacturing companies.

White Mills, **Kentucky** is dedicating a new treatment plant that is producing two million gallons of clean water per day for area residents. Federal funding is also responsible for a new county health care center. The center is replacing a facility that is inadequate to handle the county's overwhelming caseload of health-care clients.

In **Illinois**, rural development funds are distributed to the towns of Pocahontas, Versailles, and DePue for updating of water and sewer systems. Resources for mental health facilities, hospitals and health centers are in use in Massac, Effingham and Franklin Counties, while the benefits of business and industry financing is being reaped by several Illinois companies.

The Barrineau Public Utilities Company was organized in 1980 to provide waste services to parts of rural Clarendon and Williamsburg Counties in **South Carolina**. Rural development capital is paying for the expansion of this system to increase the number of households it may serve. Upon completion, the Company intends to provide water services to 183 families who otherwise would be depending on their own wells. Additionally, with the help of rural development funding, Newberry County, South Carolina is operating group homes for those seeking assistance in the area of mental health.

The towns of Ford Cliff, Barlow and Fleetwood, **Pennsylvania** are able to purchase emergency equipment for their fire stations and hospitals with community facilities resources. In addition, the townships of East Donegal, Ulysses, Mount Carmel, Eagles Mere, Greenwood and East Union are able to update their water and waste systems to serve more citizens.

The rural development allocation in **Mississippi** is responsible for creating a nursing home facility for elderly residents to serve Holmes and Humphreys Counties. Funding for a water system in Lincoln County, Mississippi is furnishing safe and sanitary water to residents in the community. Citizens of Lincoln County found the cost of private wells to furnish their water supply, expensive and beyond the affordability of many of the rural residents. In order to be eligible to apply for financing, members of the community came together to form a nonprofit association; the creation of the water system is the result.

A small manufacturing plant in DeKalb, **Mississippi** was originally scheduled to close, which could mean a loss of 37 jobs in a town of 1160. After submission of a purchase proposal by management to the owner of the parent company, management put in an application for rural development funds. The loan was granted and is guaranteed by business and industry capital. The company is currently operating successfully and profitably and they are even considering expansion.

Oregon rural development financing is responsible for purchasing a facility for a rehabilitation center for the mentally handicapped. Also, an existing sewer system is being renovated to correct inflow and infiltration problems as well as rehabilitation of two pumping stations. More than 700 of the 1800 residents in an Oregon town are benefitting from the water system built with water and sewer funds.

Broadnax, **Virginia** is able to construct a waste collection system as a result of rural development funds. The system serves 200 customers and a population of 486. The financing package for the system represents a comprehensive effort to assist with job creation and the expansion of industry. Community facility resources are also being used in Virginia to purchase two acres of land and cover construction costs for a criminal justice training academy that is necessary to train 1,500 police officers per year.

As a result of business and industry funds, a company that manufactures boiler burners, aviation components and fabricated parts in Winfield, **Kansas** receives financing. In addition to being able to restructure their debt, the financing package allows the company to grow and almost 180 employees are able to retain their jobs.

Balmorhea, **Texas** successfully operates a water and sewer system thanks to allocations from the Rural Development Administration. The system greatly improves the quality of life and health of the citizens of this community. The Central Texas Water Supply Corporation supplies public water to water supply corporations in Bell, Lampasas, Milam and Falls Counties. With the help of rural development resources, they are responsible for the construction of a water treatment plant that services an area of 120 miles and 12,000 users. Additionally, a partnership developed in a Texas town for the purpose of farming shrimp is receiving resources through the business and industry program in order to increase its capacity. The need for increased capacity should continue because demand for the product is extremely high. At full strength, the shrimp farm will employ 52 people.

CONCLUSION:

The National Conference of State Legislatures urges a constant level of funding, with adjustments for inflation for rural development programs such as water and sewer, business and industry and community facilities. It is important that programs that contribute to rural economic growth are preserved at current levels to assure that the needs of rural America are met.

The rural development initiatives taking place in the states exemplify the far-reaching effects of these activities. Hundreds of citizens receive the benefits of a new waste system and many people are able to save their jobs when their companies receive needed capital. State legislatures are taking an active role in seeking out and supporting innovative rural development projects; the federal government must match the state commitment.

Increased economic development in rural areas translates into stronger communities and a stronger tax base. Therefore, it is in the interest of the federal government as well as the states to improve the economic well-being of rural America. The challenge of revitalizing these communities awaits all levels of government.

PROPOSED BUDGET LEVELS FOR THE COOPERATIVE EXTENSION SERVICE AND THE COOPERATIVE STATE RESEARCH SERVICE

The National Conference of State Legislatures (NCSL) serves the legislators and staffs of the nation's 50 states, its commonwealths and territories. The nation's legislators advocate a strong federal commitment to the Cooperative Extension Service and the Cooperative State Research Service.

The exchange of information provided through the Cooperative Extension Service has a tremendous and positive impact on the productivity of agriculture and the overall quality of life in rural America. We urge Congress to continue its commitment to this federal, state and local partnership by funding the program at no less than current levels. NCSL opposes the President's recommendation of zero funding for the renewable resources extension function. The program proves its value by providing natural resource education activities in each state. It is important to states that all successful programs in the Extension Service be allowed to continue their operations. We also oppose recommendations of zero funding levels for farm safety, urban gardening, financial management and Indian reservation agents.

Furthermore, NCSL supports funding at no less than current levels for the Cooperative State Research Service that promotes agriculture research in the states. NCSL appreciates the President's commitment to research displayed by the creation of the National Research Initiative. A program that supports research in plant and animal systems, natural resources and the environment, and nutrition, food quality and health should make a significant contribution toward greater safety and efficiency in agriculture. However, funding for ongoing programs such as animal health and disease, aquaculture, cooperative forestry and special research grants at land-grant universities should not be subject to decreases.

BUDGET CONCERNS

NCSL supports a continuation in 1992 of budget authority at no less than the fiscal year 1991 levels, with adjustments for inflation for the Extension Service and the Cooperative State Research Service. Both functions have more than proven their worth. They not only provide services to the citizens of states, but help build the economic base of affected communities. Without the information that the Extension

Service provides, many producers and rural residents could face financial crises. Additionally, the value of Cooperative State Research grants that work toward the eradication of livestock disease are so important that their value cannot be measured.

Personnel and operations already are being streamlined to use resources as efficiently as possible in existing activities. Budgets cannot be further reduced without sacrificing programs. Further, the federal investment in these two programs generates a large return. The investment results in greater community economic growth, producer profits, and overall efficiency.

The programs mentioned in this testimony are strong examples of the benefits of a thriving federal-state partnership. "Cooperative" is the operative word. States are willing to commit to the these programs; the federal government must do the same.

Cooperation between levels of government in Extension and the Research Service results in productivity and better financial management; Illinois is reaching out to financially distressed farm families; Iowa Extension is responsible for locating a gene to stem litter mortality; Kansans are becoming exceptional business people; Nebraskans better manage their finances; and New Yorkers link biotechnology firms throughout the state with researchers. The productivity of agriculture as well as the quality of life in rural America increases as a result of Extension Service programs. Moreover, Extension's presence in more than 3,100 counties provides a vital lifeline to farmers, ranchers, families and business owners. The National Conference of State Legislatures urges you to fund these programs at least at the fiscal year 91 levels to assure that America's agricultural and rural bases continue to grow.

COOPERATIVE EXTENSION SERVICE

The Extension Service programs assist individuals and communities in identifying and solving farm, home and local problems and setting economic goals. The goals include creation of jobs and income while maintaining concern for clean air and water. The Extension System demonstrates that it is a successful federal, state and local government partnership. The partners share in planning and funding obligations. Without a steady federal investment, Extension educators cannot adequately respond to national issues affecting agriculture, the food system and rural communities.

State Programs

Currently, the Extension Service includes educators in each of the country's land-grant universities, located in the 50 states, Puerto Rico, the Virgin Islands, Guam, Northern Marianas, American Samoa, Micronesia and the District of Columbia. Activities in these jurisdictions exemplify the accomplishments of this federal-state partnership.

The Montana State University Extension helps bolster home-based businesses through marketing programs. The marketing ideas assist Native American entrepreneurs. In addition, an event takes place to give these home-based businesses an opportunity to test market their goods.

The University of Nebraska-Lincoln houses the educators that provide needed science and technology information to the state's citizens. The Extension Service in Nebraska is responsible for implementing education programs in the area of ground and surface water protection, specifically concerning nitrates from fertilizers and pesticides in groundwater. The result of Extension education programs is more efficient use of chemicals.

Illinois' Extension Service is identifying programs that it sees as priorities including: competitiveness and profitability of agriculture, family well-being, food and nutrition, soil conservation and environmental quality, rural revitalization, leadership development and youth development education. Also, the Extension Service in Illinois is fostering business development in its rural communities. The state brings together and educates local leaders on alternatives for improving the economic climate in the states. The leaders also learn how to network with existing economic development efforts. The Illinois State Legislature endorses this program that provides education and technical assistance to local entrepreneurs.

The state of Washington is also assisting its communities in economic development efforts. The state aids the localities in their establishment of long-term economic development strategies and infrastructure projects. The Extension Service helps the state's port districts initiate better planning, management and community relations activities. One of the Service's major functions is to assist development practitioners in assessing market viability and seeking venture capital financing.

Extension in Washington has a 25-year history of educational programs in water quality, management and policy development. In the past, the state's programs could claim responsibility for the sampling of streams and lakes to evaluate nutrient concentrations. Today, Washington Extension's water quality/management activities aim to solve more current problems such as decreasing non-point pollution resulting from agricultural and household practices. Further, the Extension Service's work in the Youth-at-Risk program includes addressing the problem of school absenteeism, combatting the issue of substance and alcohol abuse and preventing adolescent pregnancy.

Kansas sponsors local leadership programs in rural areas where entrepreneurs starting businesses receive assistance with management decisions and questions on food safety. Additionally, information sessions take place to help livestock and crop producers cope with drought.

The Extension specialists working on biotechnology transfer in New York State are linking 110 biotechnology firms throughout the state with researchers at Cornell University. Goals of the program are to create private sector investments, jobs and new product lines.

In Texas, Extension is helping to conserve and manage natural resources where crops and land dry up very quickly. Instead of using conventional irrigation systems, citizens are using a new one in West Texas that Extension helped to develop and modify specifically for farm conditions there. This Low-Energy Precision Applicator (LEPA) system saves farmers money and also saves them energy to use it. Extension officials say that the system pays for itself in one growing season.

The Cooperative Extension in Massachusetts helps promote tourism, wood industry development, agriculture in the classroom, and improve nutrition. In addition, most of the municipally-owned watershed land in Massachusetts is not managed. With the help of the Extension Service, 21 of 34 communities say they are implementing management plans on one-third of all of the non-managed land.

The Iowa State University Extension Service advances farm profitability and efficiency in the state through educational activities that take place in conjunction with veterinarian clinics in northeast Iowa; dairy producers report a monetary benefit from use of the program's techniques. An Extension sheep enterprise program helps sheep producers better market their products. Iowa's activities extend to water improvement, soil and conservation and economic development programs.

The National Conference of State Legislatures is calling for maintaining fiscal year 1992 funding for the Extension Service at no less than fiscal year 1991 levels. If recommendations to reduce funding are realized, it could stifle the economic growth currently taking place in states.

COOPERATIVE STATE RESEARCH SERVICE

The Cooperative State Research Service in the U.S. Department of Agriculture helps channel federal funds for agriculture research to the states. The Service works with state agricultural experiment stations, the forestry schools, some land-grant colleges and colleges of veterinary medicine. This state-federal relationship fosters a national network of communication and collaboration. The partnership helps meet the needs of U.S. agriculture by generating new knowledge and technology to reduce some of the problems facing U.S. agriculture. The ability to eradicate disease and to produce food and fiber at the lowest possible cost continue to be requisites for successful farming operations.

The state institutions that receive research funding through the Cooperative State Research Service conduct more than 50 percent of the publicly supported agricultural and forestry research in the United States. Each of the 50 states, in addition to the District of Columbia, Guam, the Virgin Islands, Puerto Rico, Micronesia and American Samoa have at least one agricultural experiment station. Experiment stations generally have several branch stations and substations so that problems specific to a particular area may be targeted.

State Programs

The research that generates from this program aims to increase efficiency and eradicate problems that stifle the growth of the agriculture industry. Consequently, the state economic base can increase with successful research programs. The Research Service also contributes to providing new crops, greater soil fertility, genetically improved animals and better marketing systems. The results of state studies are evidence of great progress made in agricultural research.

Researchers in Illinois and Wisconsin are studying methods to suppress animal losses from diseases. New York is examining resistances in vegetables, while Utah studies the productivity of vegetables under water limitation. Mississippi is a grant success story; research grants are responsible for reducing cotton production costs with an early-maturing cotton variety.

Conclusion

The National Conference of State Legislatures urges a constant level of funding for Cooperative State Research programs. We appreciate the President's creation of the National Research Initiative that aims to increase research efforts in areas such as plant and animal systems. However, it is important that existing programs maintain a constant level of funding. Programs such as the special research grants, alternative crops research and sustainable agriculture should not be cut. Further, the Extension programs in the states exemplify the effectiveness of the Extension Service. The activities are helping states streamline costs, increase efficiency and productivity, educate citizens and promote economic development. If this state-federal partnership is to continue to thrive, the federal government must match the state commitment; funds for these programs must remain at least at current levels with increases for inflation.

NATIONAL CORN GROWERS ASSOCIATION

STATEMENT OF JACK KINTZLE, PRESIDENT

Dear Senator Burdick:

The National Corn Growers Association, on behalf of more than 25,000 members who farm in 45 states, urges you and your subcommittee to appropriate $20 million for Alternative Agricultural Research and Commercialization (AARC) as authorized in the Food, Agriculture, Conservation and Trade Act of 1990.

A tremendous gap exists between the technical research to develop industrial uses for agricultural products and the commercialization of the new uses in the marketplace. The AARC can bridge this gap by funding research projects that have the greatest potential commercial application and by providing the necessary assistance to take a project from technical possibility to commercial reality.

The National Corn Growers Association has long understood the importance of diversified markets for corn. Our organization has enthusiastically supported industrial uses for corn products such as ethanol and alternative uses for ethanol, including coal desulfurization. We have been encouraged by the ever-increasing array of applications for corn and its products, but we fervently believe that much more can be accomplished by the public-private partnership envisioned by the AARC.

The AARC will provide competitive research grants to develop new, commercially-viable uses for traditional and alternative agricultural crops. It will provide financing and technical assistance to rural businesses to leverage private investment and state and local funding.

New uses will increase demand and improve prices for raw farm commodities. New markets for high-value agricultural products will create jobs and generate wealth in rural communities.

We want to thank you for your efforts on behalf of corn farmers throughout the country. We look forward to working with you to achieve the maximum potential for America's farmers and rural communities.

Sincerely,

Jack Kintzle.

Jack Kintzle
President

NATIONAL DRY BEAN COUNCIL

STATEMENT OF TOM D. GREBB, CHAIRMAN, DRY BEAN RESEARCH COMMITTEE

The National Dry Bean Council appreciates the opportunity to express its views regarding Dry Bean Research for Fiscal Year 1992. The National Dry Bean Council represents dry bean grower and shipper organizations. Through its involved member organizations, the following states are represented: California, Colorado, Idaho, Kansas, Michigan, Minnesota, Montana, Nebraska, New Mexico, New York, North Dakota, Washington, and Wyoming.

The Dry Bean Industry encompasses 14 states from New York to Washington State, and includes 15 different classes of beans. Each year 1.5 to 1.7 million acres are grown in the U.S.. The 1988 value of Dry Beans was $528,221,000.

America is the chief consumer of these beans. About 40 per cent are shipped to international markets in over 100 different countries around the globe. The sale of these bean products to international venues generates about $275 million for the American economy annually.

Today, beans are recognized by many health related groups, including the American Heart Association, the American Cancer Society and the American Diabetes Association as an extremely beneficial addition to most diets. Beans are one of the best sources of fiber available. They are low in fat and sodium, and completely cholesterol free. The American Academy of Science and The National Research Foundation agree that dry beans are sure to be the high fiber food of the 90's.

The American bean industry continues to grow and prosper due to strong commitment to research. However, research support at the federal level has declined dramatically in the past decade.

The private sector depends heavily upon basic public research outputs for new scientific information, germplasm development, and other technology advances. However, U.S.D.A.- A.R.S. dry bean research budget which addresses vital regional and national concerns has declined from $1,003,600 in FY80 to $779,900 for FY '90, '91 and '92. Most notable, the two bean projects in East Lansing, Michigan,(bacterial diseases and food processing) and Prosser, Washington, (viruses and root rots) with which we are most urgently concerned are operating on shoestring budgets of $125,000/scientist year (yr) or less. This low level of funding diminishes the accomplishment of the project goals, which in turn impacts directly on the future competitiveness of the entire bean industry.Without resistancies to eliminate effects of disease and insects, productivity deteriorates. The growing environmental concerns about agriculture are also at issue. Reductions and elimination of chemicals on dry beans, requires new research to increase resistancies to pests to keep productivity sustainable.

To operate effectively in today's environment requires at least $250,000/sy. Some of the other federal dry bean research projects, i.e. Beltsville, Maryland, (rust disease) and Mayaguez Puerto Rico, (germplasm evaluation and winter nurseries), are also below this required minimum (see below)

Present level*	Required level	location
$266,600	$500,000	East Lansing, Michigan 1- bacterial pathogens 1- nutrition & processing
$112,400	$250,000	Prosser, Washington 1- viruses and root rots
$107,100	$250,000	Beltsville, Maryland 1- rust diseases
$238,700	$250,000	Mayaguez, Puerto Rico 1- germplasm & winter nurseries
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$724,800**	$1,250,000	

* Working dry bean budgets at the scientist level.

** The rest of the ARS dry bean budget ($779,900 - $724,800, about $55,100) goes to other miscellaneous dry bean activities in various locations.

The National Dry Bean Council respectfully requests the 102nd Congress to increase the a.R.S. Dry Bean Research Budget to $1,250,000/year for the five positions mentioned above.

This would be a positive commitment to the future. It would give harmony to Federal, State, and private programs working together at an effective level. The benefactors will be the American consumer and revenue returning export markets.

STATEMENT OF THE NATIONAL EASTER SEAL SOCIETY

EASTER SEAL RECOMMENDATIONS FOR FISCAL YEAR 1992 APPROPRIATIONS

The National Easter Seal Society appreciates the opportunity to share its views with the Subcommittee on Agriculture, Rural Development, and Related Agencies, (Subcommittee). This statement focuses on the implementation of the new Extension Service "Education and Assistance Program for Farmers with Disabilities." It includes Easter Seals' recommendation that $3.8 million be appropriated in fiscal year 1992 to enhance existing projects and initiate needed services in new states.

Easter Seals credits the Subcommittee with providing the guidance and support necessary to initiate this program in 1991. Subcommittee members, along with a handful of other Members of Congress, recognized an acute need in rural America for a small and specialized effort to help farmers, ranchers, and other agricultural workers with disabilities to remain in agricultural production. By acting, the Subcommittee translated a well-founded proposal into a promising new program, which is poised to begin serving the nation's farmers with disabilities in ten states. Easter Seals is thankful for the Subcommittee's leadership in promoting and, hopefully, sustaining this worthwhile initiative.

Subcommittee members were instrumental in Senate Appropriations Committee deliberations, where $1.5 million was allocated to initiate the program. Although this amount was approved by the Senate, final funding for the program in fiscal year 1991 was set at $1,000,000. The House Committee on Appropriations identified assistance to farmers with disabilities as a priority for fiscal year 1991, but did not actually set-aside funds for a program. Senate and House conferees later agreed to appropriate $1,000,000 for this initiative.

The 1990 Farm Bill authorizes the Secretary of Agriculture to make grants to enable Extension Services to conduct collaborative education and assistance programs for farmers with disabilities through state demonstration projects and a national grant for training, technical assistance, and information dissemination to support state-level activities. The program combines agricultural know-how with disability expertise to provide farmers with disabilities and others with the specialized services that they need to safely accommodate their disabilities in everyday farm operations.

As authorized, state projects engage Extension Service agents, disability experts, rural professionals, and volunteers in offering an array of services, including: identifying and referring farmers with disabilities; providing on-the-farm technical assistance for agricultural workers on adapting and using farm equipment and tools; modifying farm operations and buildings; providing agriculture-based education to prevent further injury and disability; and, upgrading the skills of Extension Service agents and other rural professionals in farming with disabilities.

Up to $3,000,000 is authorized for state projects in fiscal years 1991 and 1992, rising to $5,000,000 for fiscal years 1993 through 1995. An additional $1,000,000 is authorized for national grant activities annually, through fiscal year 1995.

The Farm Bill provision is modeled after the Easter Seal Society of Iowa's highly successful Farm Family Rehabilitation Management (FaRM) program, which has been serving hundreds of farmers with disabilities since 1986. It builds on the pioneering work of Bill Field of Purdue University and Daryl Lowry of the University of Vermont, in applying rehabilitation and agricultural engineering techniques to disability-related agricultural modifications.

The U.S.D.A. Extension Service was expeditious in implementing the new program, moving forward on the basis of the fiscal year 1991 appropriation legislation. As a result, first year program guidelines differ somewhat from the Farm Bill provision. (For example, fiscal year 1991 guidelines allowed states to request between $75,000 and $150,000 for new project starts, even though the statute sets a $150,000 funding floor for state grants.)

Program advocates, including the National Easter Seal Society, are wholly supportive of this first year approach, and applaud the Extension Service for its skillful handling of the new program. Easter Seals is very disappointed, however, that President Bush failed to include funding for the program in his fiscal year 1992 budget request.

On December 18, 1990, the Extension Service announced the availability of funding for Extension Service projects serving farmers with disabilities. Funding for these projects was awarded on a competitive basis, with a 100% match requirement for Extension Services activities. The due date for applications was February 15, 1991, with April 1, 1991, designated the preliminary date for program start-up.

The $1,000,000 appropriated by Congress for fiscal year 1991 were allocated as follows: $770,000 for state projects, $150,000 for nationally coordinated training, technical assistance, and information dissemination, and $80,000 for U.S.D.A. administration expenses.

Interest in the new program to assist farmers with disabilities exceeded all expectations. Extension Service agencies in twenty-one states submitted applications to participate in the program. In the aggregate, funding requests exceeded $2.5 million. Enthusiasm for the program far outstripped available funding.

Nearly every application sent to Washington was topnotch. State Extension Services and their disability partners communicated the urgency of need for disability-related services in agricultural settings and their competence to implement and carry out proposed activities. They used creative approaches to serving farm families affected by disability, often involving an array of nonprofit disability groups, Extension Service staff, vocational rehabilitation counselors, volunteers, and others. In each case, applicants sought immediate entry to the program, so that assistance designed to keep farmers with disabilities in farming could begin as soon as possible.

The Nebraska proposal, for example, conservatively estimates that 4,300 to 5,750 farmers and their families currently need education and assistance services to accommodate disabilities in farming. In her letter supporting the application, Maxine Moul, Chairperson of the Nebraska Rural Development Commission, stated that "it is certain that this program would address critical needs facing rural Nebraska. This past year, I have personally visited many Nebraska communities, and it is clear to me, that we must do a better job of coordinating disability services for rural farmers and farm families." Sadly, the Nebraska project was not funded.

Of the twenty-one proposals submitted to Extension, eight were ultimately awarded grants. The successful applicants were Extension Services in: Illinois, Indiana, Iowa, Louisiana, New York, Vermont and Wisconsin, with a regional project proposed jointly by Montana, Idaho, and Wyoming. Collectively, these eight applicants sought $1,055,248. However, with just $770,000 allocated to state projects, every applicant was required to downsize their budget.

Easter Seals believes that these eight successful applicants are uniquely qualified to expand access to practical and cost-effective services aimed at helping farmers, ranchers, and other rural workers to continue in agricultural production. The projects contain varied combinations of resources, approaches, and agricultural settings, but share a common goal of safely maximizing the productivity and independence of farm families affected by disabilities.

In Iowa, for example, the Iowa State University Cooperative Extension (ISU-Extension) joined the Iowa Easter Seal Society's FaRM program in developing a project to address the needs of about 37,000 agricultural producers affected by disabilities and health-related conditions, and their families. To remain in farming and farm-related occupations, these rural families must overcome significant barriers, including rural isolation, lack of information, and limited financial resources.

The Iowa project aims to tackle these barriers by: increasing awareness of available services; learning about low-cost modifications to farm and home operations; and, obtaining technical assistance to make appropriate modifications to permit farming with a disability. In its first year, ISU-Extension and Easter Seals expect to:

- increase the awareness of 25,000 Iowans on farming and disability
- identify 5,000 families in need of project assistance
- train 100 Extension agents, agency professionals, and volunteers
- provide on-site technical assistance and make modifications
- provide technical assistance to 250 individuals through off-site contacts
- produce and use materials on farming and disability

Like the Iowa project, all of the successful applicants are setting out to accomplish ambitious objectives. The National Society is very encouraged by the valuable services envisioned under the eight projects and will work to enhance their effectiveness.

Unfortunately, funds were insufficient to support even a majority of proposals. Applications submitted by Extension Services in California, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, North Dakota, Ohio, South Carolina, Tennessee, and Utah could not be funded. These proposals documented substantial need among farmers, ranchers, and other agricultural workers with disabilities for program services. They also demonstrated considerable creativity, enthusiasm, and capability in involving an impressive array of interests to assist farm families affected by disabilities.

Mississippi Extension, for example, submitted a solid proposal to establish a project serving farmers with disabilities and their families. Mississippi is estimated to have the highest percentage of people with severe disabilities, including severe developmental disabilities, in the nation. With 52% of the state's population residing in rural areas, a high number probably engage in agriculture and are at risk of becoming disabled. In fact, over 4,600 Mississippi farm workers have disabilities. Despite this need, funds were not available to start a project in the state.

Extension Services in three states competed for the grant to provide nationally coordinated training, technical assistance, and information dissemination services. The Indiana Extension Service - Breaking New Ground Resource Center at Purdue University was awarded the national grant, in conjunction with the National Easter Seal Society. With its strong record of success, Easter Seals is confident that the Purdue program will excel in carrying out national grant activities.

The National Easter Seal Society urges the Subcommittee to allocate $3.8 million in fiscal year 1992 for the Extension Service Education and Assistance Program for Farmers with Disabilities. Of this amount, Easter Seals recommends that $3 million be used to sustain and expand first-year projects, and implement new projects in at least a dozen states. The remaining $800,000 would support an expanded training, technical assistance, and information dissemination effort and cover U.S.D.A. administrative costs (approximately 8% of total program funding).

The National Society believes that a $3.8 million appropriation in fiscal year 1992 is justified by the high level of need in the agricultural community for program services and by the overwhelming interest among states in employing creative approaches to safely accommodating disability in agricultural production.

Over 500,000 farmers, ranchers, and other agricultural workers have physical disabilities which limit their ability to perform essential agricultural tasks. Each year over 100,000 disabling injuries occur on farms, many of which result in permanent disabilities. Thousands more in the agricultural community become disabled every year as a result of accidents, injuries, and illnesses. As a group, these rural residents tend to be isolated from city-based resources and generally lack access to the specialized education and assistance they need to continue in safe and productive agricultural operations.

In North Dakota, for example, 1988 estimates indicate that there are at least 3,000 farmers with disabilities. Each year, another 200 North Dakota farmers experience disabling farm accidents, and many more become disabled through non-farm causes. There are few resources available for the majority of these rural residents to assist them in their successful return to agriculture. According to Gordon Hauge, Interim Executive Director of the North Dakota Easter Seal Society, "there are few connections between the hospital and home" and the Extension Service program would "fill that void." Easter Seal staff and volunteers in North Dakota were extremely disappointed to learn that their state was not awarded a 1991 grant. However, they are very serious about pursuing a grant next year.

Equally impressive need and determination exists in other states. Reviewing even a small sample of proposals submitted to U.S.D.A. reveals that: as many as 10,000 farmers and farm families with disabilities reside in Tennessee; an estimated 8,400 Michigan farmers were injured in farm-work in 1987, with 4% or 330 sustaining permanent disabilities; approximately 15,300 Minnesota farm operators have physical disabilities that limit their ability to perform farm work; and, in Ohio, there are between 3,500 per year and 44,280 total farm residents with some degree of disabling condition. Clearly, there is a great and immediate need among tens of thousands of rural Americans for services under this program. Until projects are funded in their states, they have few alternative sources of assistance.

The National Society expects nearly thirty states to pursue participation in the program in fiscal year 1992. The eight first-year projects are certain to seek continuation funding, with several states likely to request funding increases to support expanded outreach efforts. The thirteen applicants that failed to receive awards in fiscal year 1991 are virtually guaranteed to reapply next year. In at least six additional states (including Washington, Arkansas, Maryland, Delaware, and Texas), Extension and disability forces mobilized to consider the program and are likely to submit a proposal next year.

The National Easter Seal Society believes that the new Extension Service Education and Assistance Program for Farmers with Disabilities will have a profound impact on keeping people with disabilities in agriculture. Easter Seals urges the Subcommittee to promote sufficient funding to sustain and expand first-year efforts and to bring at least as many new states into the program next year. An appropriation of $3.8 million in fiscal year 1992 will accomplish this goal.

Thank you for this opportunity to comment.

NATIONAL FAMILY FARM COALITION

STATEMENT OF KATHERINE OZER, POLICY COORDINATOR

The National Family Farm Coalition (NFFC) appreciates the opportunity to submit this written request on areas of particular concern for FY 1992 agriculture appropriations. These issues are not new, but reflect the ongoing concern and commitment of our diverse membership representing family farmers in over 30 states around the country.

Our appropriations request focuses on credit, minority outreach and education, and sustainable agriculture research issues. These are all areas that were amended or recently authorized in the Food Agriculture and Trade Act (FACT) of 1990 - P.L. 101-624.

Agricultural Credit - FmHA: We urge the Subcommittee to closely monitor the changes in Farmers Home Administration (FmHA) loan programs from the past few years. We remain deeply committed to the role of FmHA direct lending programs - both ownership and operating programs - and urge the Subcommittee to increase the direct loan program funds. During the 1990 Farm Bill and the Omninus Budget Reconciliation Act (OBRA), massive cuts were imposed on the direct lending programs with the assumption that farmers would be able to continue to receive credit under the guaranteed loan interest rate buydown program. We remain concerned that the direct loan funds have been reduced yet the guaranteed loan funds are not meeting the credit needs of family farmers. With increasing economic uncertainty in many regions of the country this credit crunch is of increasing concern.

Agricultural Mediation Programs: The NFFC continues to support the federal match for state mediation programs. The programs have shown to be very effective during the past three years in enabling farmers and their creditors to resolve differences and negotiate a workable agreement while often reducing both the government and farmer cost. We do however remain concerned about the variation among states as to the participation of other agencies, most notably Farm Credit System and the Small Business Administration.

While the funding levels during the past few years has met the need for existing programs, we urge the Subcommittee to provide $5 million for FY 1992. This level would accomodate increased funding levels that have been secured at the state level as well as new programs that are currently pending before state legislatures. The demands on many of these programs has remained stable or has increased somewhat in response to new problems in the Agriculture sector across the country.

Minority Outreach and Education: The 1990 Farm Bill established a new program with a $10 million per year authorization that would provide grants through the Office of Advocacy and Enterprise (OAE) to be divided between community based organizations that have demonstrated their effectiveness in providing information and technical assistance to socially disadvantaged farmers and educational institutions including historically black universities. These funds would provide for critically needed outreach and technical assistance meeting some of the diverse needs of socially disadvantaged farmers.

Of the $10 million request, $3 million would be used for outreach and education to ensure that minority farmers are provided information about all sustainable agriculture and conservation programs in the 1990 Farm Bill.

Sustainable Agriculture Research and Extension: The NFFC joins with 15 other organizations representing consumer, environmental and agricultural interests that have submitted a joint proposal for funding for FY 1992. These research and extension areas follow the mandate established in the 1990 Farm Bill for establishing new directions in both basic and applied agricultural research and the dissemination of this information to farmers and consumers nationwide.

The overall appropriation request falls within the Administration request for FY 1992 by reducing the National Research Initiative increase and placing a higher priority on other research areas.

The Low Input Sustainable Agriculture Program (LISA) appropriation request is for $30 million - an increase that more closely meets the demand for this type of competitive research program.

The request calls for $15 million in Sustainable Ag Extension Program -County Agent Training to be administered by Extension as a competitive grants program utilizing the expertise of the already existing LISA regional panels.

$1 million is requested to begin the development of the technical guides that are to be available by 1993, according to the Farm Bill, for farmers to participate in the new sustainable program initiatives. These guides will be jointly produced by Extension and Soil Conservation Service and are critical to providing necessary information to farmers pursuing changes in their farming practices.

On behalf of the National Family Farm Coalition, I urge you to strongly consider appropriating funds for the above programs. These are program areas that address concerns of family farmers trying to survive the 1990's whether through access to government credit programs, mediation of FmHA disputes or outreach to minority farmers who have in many cases been denied adequate information. A redirection of scarce federal research funds will send a clear signal that there should be alternatives to the existing agricultural system that are both economically and environmentally more secure. Again, we appreciate your support of these issues.

Sincerely,

Katherine Ozer

Katherine Ozer
Policy Coordinator

NATIONAL FOOD PROCESSORS ASSOCIATION

STATEMENT OF JOHN CADY, PRESIDENT

Mr. Chairman: I am John Cady, President of the National Food Processors Association (NFPA). NFPA is a trade association representing more than 500 member companies engaged in the food industry. NFPA members include manufacturers of processed-packaged fruits and vegetables, juices, meat and poultry, seafood products and specialty products preserved through canning, freezing, dehydration, pickling and other methods. NFPA members also include suppliers to the food industry.

NFPA is a scientifically and technically-based trade association. NFPA's commitment to science and technology is evidenced by the three food science research laboratories it operates which are staffed by more than 100 scientists. NFPA laboratories conduct studies on food safety, nutritional content of food and innovative food processing and packaging technologies designed to promote optimal safety and nutritional value of food. NFPA brings its technical expertise to its representation of member companies in matters of scientific, government and consumer affairs.

NFPA appreciates the opportunity to express publicly our strong support for the food programs of the Food and Drug Administration (FDA) and for the funding we believe is fundamental to assuring the future strength and vitality of this important agency. In fact, we support adding $85 million in FDA funding to the $770 million in the President's request for FY 1992. Necessitating this increase are new FDA statutory requirements from recently enacted legislation affecting the food industry, such as the Nutrition Labeling and Education Act and the Sanitary Food Transportation Act; insufficient existing funding for enforcement; and the need for a unified FDA campus.

NFPA vigorously opposes imposition of a so-called registration fee to fund any part of the 1992 FDA budget. The net effect of user fees would be further erosion of public confidence in the food supply and the FDA. The public will perceive impropriety if industry is forced to fund its own regulator. FDA needs to be like Caesar's wife; its regulatory independence and integrity must be above suspicion. The agency must not have a financial stake in the industry it regulates.

Moreover, FDA health and safety activities benefit the public at large and should be funded accordingly. It would be grossly unfair to substitute private industry funding for public funding for work that promotes the general welfare of the nation and all its citizens.

Last, the practical effect of user fees would be a pass-through of increased costs to consumers, and as such would constitute a highly regressive tax on the American public.

The food industry works strenuously to produce the most safe and wholesome food available in the world and to maintain the confidence of consumers in the high quality of the food supply. We work not merely to maintain the status quo, but to develop and utilize new food technologies. Consumers benefit from advances in food safety and nutrition as science equips us to provide them.

The food industry also strives to communicate important food-related health and safety information to the public. We are presently leading a food industry effort to educate the public on the use of nutrition labeling information following enactment of the Nutrition Labeling and Education Act last year, which NFPA actively supported. We believe our record is strong, and one of which we are proud.

FDA also plays an essential and pivotal role. A strong FDA promotes food quality and assures consumer confidence in the food supply through the science-based policy choices it makes as it assesses the need for food and labeling regulation, evaluates and develops regulatory systems to address food issues, communicates health information and explains FDA policies to the public. If FDA cannot effectively carry out these functions, public confidence in the agency wanes, creating potentially serious consequences for the food industry. Under such circumstances, states may consider developing their own regulatory schemes; private organizations may launch quasi-regulatory food testing or labeling systems; and consumers may avoid certain food products in the belief they are protecting their health.

As a consumer-driven industry engaged daily in interstate commerce, the food industry fully understands that a strong FDA is fundamental to good national public health.

Thus, it is critically important to the food industry that FDA be adequately funded and staffed to carry out its congressional mandate and restore the consumer confidence in the agency. NFPA asks, therefore, that the Agriculture, Rural Development and Related Agencies subcommittee fully fund the President's FY'92 FDA budget request and add an additional $85 million to ensure funding needed for FDA to carry out its mandate, enforce all laws for which it is responsible, and to create a unified FDA campus.

In summary, Mr. Chairman, tentative estimates for implementation of the Nutrition Labeling and Education Act of 1990 run as high as $16 million annually. FDA's Center for Food Safety and Applied Nutrition, which is charged with promulgating the regulations mandated by this Act, is already overworked and underfunded. This situation cannot and must not continue. It is absolutely essential to provide this increased funding for FDA, and to do so at this crucial juncture.

Thank you for the opportunity to testify before your Subcommittee on behalf of my membership.

NATIONAL GRAIN SORGHUM PRODUCERS

STATEMENT OF JACK EBERSPACHER, EXECUTIVE DIRECTOR

The establishment of a viable and adequate Multiple Peril Crop Insurance program is essential for American agriculture. Farmers have been saddled with more than their fair share of cuts in the 1990 farm bill.

Grain sorghum producers understand as well as anyone what it means to live within budgets. They accept the reduced safety net of the price support programs in the 1990 farm law. However, the need for a secure economic safety net is perhaps more crucial than ever.

The streets of our rural communities are lined with vacated buildings. Businesses have closed their doors and the citizens migrated to urban areas. Insurance protects individuals from local disasters and communities from the economic devastation caused by wide-spread disaster. Thousands of rural communities can testify to the importance of crop insurance.

For rural communities, the positive effect of a dollar changing hands several times before leaving the community is significant. For each new dollar that flows into a community, about $5 in commerce results, according to economists. This is called the economic multiplier effect or economic value.

During periods of abnormal weather in the 1980's, the economic security provided by crop insurance was almost $400 billion. The cost to the government was only about $2.2 billion (loss payments in excess of premiums), less than half of the cost of the 1988 disaster program.

Crop insurance transfers the risk from a producer to an insurer, and it can be used as collateral by the producer to secure operating loans. About 70 percent of such loans are secured by crop insurance. The lender knows that the grower will have either the sales receipts from the crop or the insurance loss payment to pay back the operating loan on schedule.

The changes proposed by the administration in crop insurance would only mean additional uncertainty for producers. Increasing premium rates will reduce farmer participation and thereby reduce the effectiveness of the program. The likelihood is increased demand for ad hoc disaster relief legislation. The National Grain Sorghum Producers (NGSP) opposes any reduction in premium subsidies.

NGSP supports the by-partisan recommendation of the House Agriculture Committee to fully fund the program and opposes the Administration's proposed cuts in the federal subsidy for the crop insurance program.

NGSP supports the crop insurance reforms in the 1990 farm bill. We encourage USDA to move swiftly to implement them, and Congress to give the new reforms time to work. Crop insurance management decisions must be made in the public interest and must be subject to public scrutiny. Too many decisions are made by people who are too far from the farm.

We are encouraged by FCIC's numerous Federal Register notices requesting public comment on broad policy issues. However, we are troubled that we do not see the same eagerness to correct regional problems that exist. Example:

> In Hidalgo County, Texas, premiums for dryland corn with an approximate yield base of 68 bushels are $4.70 hail in, $3.30 hail out, per $100 of coverage.
>
> For dryland grain sorghum with an approximate yield base of 45 bushels, premiums are $6.70 hail in, $5.70 hail out, per $100 of coverage.

The loss ratio for dryland corn is **$8.99** (premiums $1,011,073, losses $9,087,155).

The loss ratio for dryland grain sorghum is **$1.32** (premiums, $4,976,421, losses $6,560,108).

The premiums for dryland grain sorghum are not in the proper relation to the loss ratio. Grain sorghum is drought tolerant and production of grain sorghum as a feedgrain should be encouraged. The premiums for dryland grain sorghum should be lowered. If FCIC personnel would consult the informed parties as suggested, losses for the Federal Crop Insurance program could be reduced dramatically.

We believe that FCIC should announce preliminary rates and rules on a county basis. Opportunity for input from the producer organizations, private insurers, bankers and extension services can provide valuable information.

Instead of increasing rates and reducing participation from farmers, we support the concept that grain sorghum should be put on par with corn in the farm bill. Additionally, a well managed FCIC program would have the capability of determining problem areas such as Hidalgo County, Texas, and could reduce its excess losses.

If the management of the Federal Crop Insurance program can learn anything from the 1990 farm bill exercise, it is that agriculture asked for a simplified farm bill. In reality, they got a more complicated farm bill. Keep crop insurance simple and ask for input. Such input can be used to reduce FCIC losses.

We firmly believe that FCIC's role is to oversee and regulate the program. There are better avenues for delivering the system.

Rate increases should not be considered until existing problems have been adequately corrected. As farm price support programs become more market oriented, an improved publicly-supported crop insurance program must become an essential part of agricultural policy. We encourage your committee to fully fund the program and encourage USDA to utilize the input of local expertise to correct the problems in the program.

Sincerely,

Jack Eberspacher

Jack Eberspacher
Executive Director

NATIONAL ORGANIZATION FOR RARE DISORDERS, INC.

STATEMENT OF ABBEY S. MEYERS, EXECUTIVE DIRECTOR

Mr. Chairman, members of the Subcommittee, we are delighted to report that the FDA's Orphan Drug Development Program, which you have funded since FY83, continues to be an astoundingly successful effort to save lives and decrease the suffering of rare disease patients with serious and untreatable illnesses. It is a well known fact that the Orphan Drug Grant Program continues to foster a unique partnership between government, the pharmaceutical industry and academic scientists who have no place else to turn for support of their clinical research.

As you know, orphan drugs are drugs of little commercial value that would not be developed without the incentives of the Orphan Drug Act. Many orphan drugs are developed by the pharmaceutical industry, but some are discovered by academic scientists studying limited populations of rare disease patients at university affiliated hospitals. These scientists find it very difficult and often impossible to secure funding to continue their research once they have discovered a new treatment that has little potential for profit. The FDA's Orphan Drug Grant Program provides these funds, enabling investigators to entice drug companies into manufacturing these treatments by using the clinical data that results from their studies.

Moreover, the Orphan Drug Act has spurred the birth of a new group of small pharmaceutical companies that have begun because of orphan drugs. Large companies are often not interested in products with limited potential sales, but small companies are delighted to get on the market with a product selling $5 million to $10 million per year.

Let me give you a few examples of what your appropriations have done in recent years:

- An orphan drug grant to a new company, Enzon Inc., underwrote the first clinical study of children with ADA deficient Severe Combined Immune Deficiency (SCID), better known as the "Bubble Boy Disease". They were treated with PEG-ADA (Adagen), a drug that replaces a missing enzyme in their bodies. Without this enzyme the children have no functioning immune system, and they usually die within the first year or two of life. Enzon's initial orphan drug study provided the impetus for the company to continue developing this drug which was approved for marketing by the FDA last year. All of these children (only twenty in the U.S.A.) are still alive; they are leading normal lives and even going to school. Now that Enzon has developed the technology for enzyme replacement therapy, we are hopeful that many other untreatable and deadly enzyme deficiencies will become treatable in the near future.

- An orphan drug grant to Dr. Saul Brusilow of Johns Hopkins University, enabled Kendall McGaw to adopt his drug, Ucephan, for treatment of Urea Cycle disorders. This group of genetic illnesses cause ammonia to be built up in the blood, usually killing babies before their first birthday. Dr. Brusilow is presently developing a new improved drug (sodium phenylbutyrate) under another orphan drug grant, which is much better tolerated than Ucephan. There are now 150 children still alive today because of this work.

- An orphan drug grant to Dr. Larry Scrima showed that Gammahydroxybuterate (GHB) can control the sudden sleep attacks of people with narcolepsy. Subsequently, Biocraft Laboratories has adopted this drug and is performing larger clinical trials.

- The first orphan device to be approved for marketing by the FDA was the result of a grant to Dr. Debra Shure. She developed a pulmonary angioscope through which doctors can remove dangerous emboli from the lungs instead of resorting to surgery.

- A grant to Dr. George Brewer of the University of Michigan to study zinc as a treatment for the deadly hereditary disorder, Wilson's disease, led to the adoption of this drug by the Lemmon Company.

- And an orphan drug development grant to Dr. Jerry Schneider of UCLA, allowed him and his colleagues to keep children with cystinosis, a lethal kidney disease, alive with the orphan drug cysteamine. We are pleased to tell you that a pharmaceutical company has adopted this drug after a decade without a commercial sponsor.

I could go on and on, counting the orphan therapies being used today for previously hopeless and crippling diseases, and counting the lives you have saved through your appropriations for orphan drug grants. Unlike many of the other federal programs that fall within this subcommittee's responsibilities, you don't have to wait years to understand the impact of your deliberations; you can simply count the children who would not be alive today without your help.

Last year this subcommittee appropriated $11.5 million for FDA's orphan products development activities; $8.7 million was allotted for grant awards. We ask you this year to appropriate $15 million with at least $11.5 million for grants. There are still numerous worthy grants that are not funded each year due to limited funds. More lives can be saved with every dollar appropriated.

It is not often that a federal program accomplishes the exact objectives it was created for. Besides saving lives, the FDA's Orphan Drug Grant Program has spurred new research, developed new technologies, and spawned new pharmaceutical companies as a bonus that even we never imagined. The members of NORD thank you from the bottom of our hearts, and we ask you to continue and expand your support this year so that additional orphan diseases can be conquered in FY1992.

NATIONAL PORK PRODUCERS COUNCIL

STATEMENT OF JOHN HARDIN, PRESIDENT

On behalf of the National Pork Producers Council, I would like to thank you for giving us this opportunity to submit testimony regarding the 1992 Fiscal Year Agriculture Appropriations Bill. The National Pork Producers Council (NPPC) represents more than 100,000 pork producers in 45 affiliated states. Our members account for more than 90 percent of the commercial pork production in the United States and have diverse interests that include agricultural research, production, and marketing.

Our producers appreciate the past support of this Committee and other members of the Senate in helping us address the problems facing the pork industry. We recognize the challenge this Committee faces in allocating scarce federal resources. We hope this testimony is useful to you in identifying those priority areas critical to the continued growth and development of the U.S. pork industry.

Synopsis

The NPPC urges the inclusion of $12.7 million within the Animal and Plant Health Inspection Service (APHIS) FY 92 appropriation for Pseudorabies (PRV) eradication. Additionally, funds for swine brucellosis, swine health protection, and animal disease detection are important to the continued health of the industry. Federal funding for animal research is essential for the long-term growth and competitiveness of the U.S. pork industry.

The animal research components of the USDA's budget should be strengthened to bring about parity between plant and animal sciences. To meet this goal, the NPPC supports the development of a National Swine Research Center within the Agricultural Research Service (ARS). This center should not jeopardize or redistribute ongoing swine research funding, but should complement, coordinate, and expand current efforts. A new program for research and education into integrated resource management, that was included in the Food, Agriculture, Conservation, and Trade Act of 1990, deserves the Committee's consideration and support.

Finally, there are issues affecting the entire agriculture community that the NPPC would like to emphasize. We support increased funding for environmental research and water quality improvement programs. Specifically, the Water Quality Incentive Program and the Integrated Management Systems Program deserve the Committee's support. Current USDA trade, food safety, and marketing programs should be continued within the FY 92 Agriculture Appropriations Bill.

Animal Disease Control and Eradication

Pork producers are continuing their fight against the pseudorabies virus (PRV), formally known as Aujeszky's Disease. The NPPC is asking that $12.7 million be included in the FY 1992 Agriculture Appropriations Bill to help fulfill the federal commitment to the 10-year pseudorabies eradication plan.

The NPPC appreciates the USDA's increased support of the pseudorabies eradication program. The Department's FY 92 budget request of $6.713 million is more than double the amount requested by the USDA last year. The demand for additional PRV program funds, however, is much greater. The 10-year program developed jointly by the USDA and the NPPC called for $12.7

million in federal funds for both FY 91 and FY 92. The $6.554 million allocated last year combined with this year's budget request are slightly more than half of what is necessary to maintain the program on the original schedule. Without adequate money for testing and eradication, the disease may continue to spread through intrastate and interstate commerce.

The lack of adequate funding for PRV is compounded by the lack of adequate manpower to do the job. In a state like Iowa, which produces 25% of the nation's hogs and has the highest incidence of infected herds, the number of state and federal veterinary personnel is inadequate to meet the needs. The industry is proposing to use veterinary practitioners to assist state and federal veterinarians in developing and monitoring herd cleanup plans. The plan to use practitioners includes a requirement for cost-sharing between the federal government, the states, and the individual producers. This approach will not be successful, however, without the federal government's commitment, support, and leadership.

The United States must also address the swine brucellosis disease. The USDA's brucellosis program has become more effective recently in reducing the incidence of this disease. The federal government's renewed commitment is the primary reason for this recent success. A similar commitment is necessary to eradicate swine brucellosis. The NPPC is seeking a specific line item appropriation of $3.3 million within the FY 92 APHIS budget for this disease. If this funding is sustained in future appropriations bills, this disease could be eradicated within the next three years.

The NPPC would like to see the Committee continue their support of traditional animal disease detection and eradication programs. The Administration's requests for $3.586 million for the Swine Health Protection Program and $10.1 million for the Animal Disease Detection Program deserve the support of this Committee. We must have adequate resources to protect our livestock from new diseases entering this country from foreign nations.

Animal Research Programs

Animal research holds the key to the long-term health and growth of the livestock industry. Research in the areas of production, food safety, and marketing are vital to increasing profitability and maintaining consumer confidence in our products.

The production and marketing of livestock adds value to our traditional agricultural commodities. Improving our productivity can have a multiplier effect on the agricultural economy. For this reason, the NPPC applauds the continuation of the animal research component of the National Research Initiative contained within the Cooperative State Research Service (CSRS) budget. It is difficult to understand, however, the lack of parity in the development of the plant and animal research components of the initiative. A more balanced approach toward agricultural research within both the National Research Initiative and the ARS budget could enhance the return on this federal investment.

A new research proposal could help the Congress, the USDA, and the pork industry achieve the goal of enhanced animal research. The NPPC supports the development of a National Swine Research Center within the ARS. There are a number of emerging issues facing the pork industry that are not being addressed at either the USDA's Beltsville Laboratory or the Meat Animal Research Center in Clay Center, Nebraska. A National Swine Research Center is essential for our industry to compete here at home and in world markets.

A new research center should not jeopardize or redistribute ongoing swine research funding. A National Swine Research Center could expand into new areas such as product utilization, animal behavior, molecular genetics, and environmental management as it relates to swine. In addition, the center's mission should complement existing swine research in the areas of reproduction, disease, and food safety. These two facets would allow this center to conduct multi-disciplinary applied and basic research as well as coordinate research efforts with other institutions.

The NPPC asks that the Committee include funds for the planning and development of such a center in the FY 92 Agriculture Appropriations Bill. We request full funding of the USDA's proposed budget for the Meat Animal Research Center and a restoration of the funds deleted in the President's Budget for Section 1433, the Animal Health and Disease program. Our members are pleased the Department recommended an increase in the APHIS Biotechnology program. We would ask that the Committee support this request for $6.301 million in FY 92. Finally, U.S. pork producers support continuation of the USDA's food safety initiative as proposed in the Department's budget.

General Agriculture Issues

Pork producers recognize that the quality of the environment is an issue the entire agricultural community must address. Specifically, the National Pork Producers Council Environmental Task Force is focusing on the issue of livestock nutrient management and water quality. The Task Force has reviewed the Soil Conservation provisions of the Food Security Act of 1985 as a possible model for addressing water quality concerns.

The NPPC's Task Force supports the USDA's Water Quality Initiative and urges the Department to continue taking a leading role in this area. The Department's multi-disciplinary approach to water quality, which includes research, education, and technical assistance, mirrors the NPPC's approach toward addressing environmental quality issues. Our Environmental Task Force, however, would like to see greater utilization of SCS personnel to assist producers in developing and implementing water quality plans.

The soil conservation provisions of the Food Security Act of 1985 could provide a model for water quality improvement in future years. The partnership of federal technical assistance and funding combined with producer developed plans could be an effective way to protect our natural resources for future generations. For this reason, pork producers are disappointed the Department chose to limit funding for the Water Quality Incentive Program, a new program authorized by the Food, Agriculture, Conservation, and Trade Act of 1990, to $5.0 million. The NPPC would request that $50 million be appropriated for this new program to help farmers develop and implement water quality protection plans.

The 1990 Farm Bill includes a section on integrated resource management systems. The intent of the section is to help farmers develop environmentally sound farming practices. This type of incentive program will be helpful to livestock producers who want to be more progressive in protecting the environment. The program is authorized at a level of $20 million per fiscal year. The NPPC support this authorization and urges full funding of the program.

The agriculture industry needs an effective way to analyze the structure and concentration of livestock markets. There is a great deal of debate about the need for Congressional action to prevent the development of restraints in the market place related to packer concentration. Additional funds should be allocated to the USDA's Packers and Stockyard Administration to help conduct this research and carryout appropriate monitoring.

We understand this Committee has received a proposal for a study regarding the concentration issue. While the collection of this information will be useful to the industry, the proposed study overlooks the role of the P&SA. Information collected by the P&SA that cannot be shared because of laws regarding the release of proprietary information, could be analyzed by the agency to ensure market fairness for producers.

The NPPC would like to reiterate our support for several USDA programs that provide a general benefit to agriculture. Adequate funding of the Food Safety Inspection Service (FSIS) to eliminate any potential disruption of service is critical to the profitability of our industry. Programs within the Foreign Agricultural Service such as the Market Promotion Program directly benefit pork producers and the agriculture community through foreign market development. Changes should be made in the appropriations for the Export Enhancement Program (EEP). The Food, Agriculture, Conservation, and Trade Act of 1990 included a provision directing the Secretary of Agriculture to seek to expend 25% of EEP funds on value-added products. Since the Department has been unwilling to implement similar directives on EEP from Congress in the past, this Committee should earmark a specific portion of FY 92 EEP funds for value-added exports.

The Department of Agriculture's FY 92 budget proposes that new legislation be passed to provide $50 million in user fees for the FSIS. The NPPC opposes this legislation and any similar effort to impose user fees upon the meat packing industry. Our producers will bear the brunt of any new fees placed upon the industry to ensure food safety.

Conclusion

The NPPC thanks the Committee for its support of the many programs mentioned in this testimony. We look forward to working with the Committee as the FY 1992 Agriculture Appropriations Bill is drafted. With your assistance, pork producers can work cooperatively with the government to improve our product's safety, profitability, and international competitiveness.

NATIONAL POTATO RESEARCH PROPOSAL

STATEMENT OF BOB WALTHER, VICE PRESIDENT

Good morning Mr. Chairman and Members of the Subcommittee. My name is Bob Walther. I am a potato farmer from Michigan and current Vice President for Government Relations for the National Potato Council (NPC). On behalf of the Council, we thank you for your assistance in obtaining funding for part of the Proposal in Fiscal Years 1988, 1989, 1990 and 1991 and we look forward to working with you to expand the funding in Fiscal Year 1992. We believe that increased funding for marketing and varietal development is important and would allow for the continued development of important research.

The National Potato Council (NPC) is a national trade association representing approximately 13,000 potato growers in thirty-eight (38) states. Our growers produce both seed potatoes and potatoes for consumption in a variety of forms. Annual production during the decade 1977 to 1986 averaged 352,889,700 hundredweight with a farm value of $1,639,184,200. Total value is substantially increased through processing. The potato crop clearly has a positive impact on the U.S. economy.

The potato is the most popular of all vegetables grown in the United States. Annual per capita consumption is 126.2 pounds in 1989, up from 107 pounds in 1962, and is increasing due to the advent of new products and heightened public awareness of the potato's excellent nutritional value. Per capita consumption of processed potatoes increased dramatically from 57.0 pounds in 1970 to 76.4 pounds in 1989. Potatoes are considered a stable consumer commodity and an integral, delicious component of the American diet. (Attachment I)

The potato crop has been traditionally controlled by supply and demand in a free market. Government support programs such as price-guarantees and acreage set asides have not been necessary. However, like any other major commodity, potato growers recognize, in order to remain a viable and competitive industry, we must constantly strive to improve production efficiency and market quality. Through carefully planned and cooperative research, we believe we can continue to offer an excellent product and maintain a viable U.S. agricultural industry.

As you will recall, the National Potato Research Proposal was the culmination of an intensive effort begun in 1984 between the NPC and the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS) to identify national research issues of concern to the potato industry. During the Fiscal Year 1988 budget process, based on these identifiable research needs, the National Potato Research Proposal received initial funding for the top three of nine priority research projects as follows: ring rot diseases ($500,000); early dying disease ($350,000); and marketing ($350,000).

During the Fiscal Year 1989 appropriations cycle, the NPC presented to you and your Subcommittee a request to build on the funding base that had been established in Fiscal Year 1988. Due in large part to your leadership, Mr. Chairman, and the support and interest of all the members of the Subcommittee, Congress approved increased research funding for marketing at a level of $250,000 and provided initial research funding for aphids and potato beetles at the level of $200,000 each. The industry is well aware of your assistance in obtaining this funding, and we deeply appreciate the efforts of the Subcommittee, particularly in light of the budgetary difficulties you have had to face.

In the Fiscal Year 1990 appropriations cycle the ARS received additional funding for the National Potato Council for research priorities for aphids ($200,000) and potato beetle research ($300,000).

For Fiscal Year 1991 the ARS received increases of $150,000 for potato beetles and $100,000 for varietal development.

It is important to note that representatives of the NPC have held annual meetings with ARS officials, the most recent in December of 1990, to discuss the distribution of research funds. The NPC is particularly pleased with the tremendous efforts put forth by ARS to ensure that the research is conducted in the most thorough, expeditious and cost effective manner. The NPC looks forward to continuing its close partnership with ARS to maximize the use of these important funds.

Based upon a review of research underway and an assessment of industry needs, the NPC urges that increased appropriations be provided for marketing and varietal development in Fiscal Year 1992.

We would like to mention once again the differentiation between regional research priorities and those priorities designed to help the potato industry on a national level. Production and marketing problems vary between regional areas and are being addressed on the local level. While there is ARS funding directed to these problems that should be maintained, we are here to discuss, separately, the national nine-part proposal. Further, it should be noted that NPC has stressed the coordination of regional and national projects in order to eliminate duplication of effort with scarce resources.

The nine projects are deemed to be the most essential national research projects to improve potato production throughout the nation. For example, research would be conducted on diseases which affect the industry's ability to promote exports and reduce market losses, thereby ultimately benefiting the domestic consumer. Further, the NPC believes these research proposals will enhance the overall marketable production of potatoes, therefore benefiting the grower and consumer without reliance upon costly federal production subsidies.

The NPC has become deeply involved in environmental issues, including concerns over groundwater and chemical safety. We feel that our growers make every attempt to apply such chemicals safely and well within Environmental Protection Agency requirements. However, we anticipate further restrictions on the use of chemicals and even the loss of some existing products. For example, the Colorado Potato Beetle has become an increasingly troublesome pest in many production areas and is spreading rapidly. Many production areas face increased virus and fungal diseases as well. Research is therefore even more critical given the rapid spread of these pests and diseases and the concerns over chemical use. It will be possible to overcome our dependence on chemicals through plant breeding and use of genetic engineering approaches. This is why increased funding of varietal development research is of particular importance. Plant breeding will not only help develop improved potato varieties with resistance to insects, diseases, nematodes, and environmental stress factors, but it will also allow development of varieties with improved nutritional and market quality.

Funds for marketing research would allow for an expansion of cooperative research on control of preharvest and postharvest environmental factors that reduce potato quality; improved methods of storage, particularly for the processing industry; control of potato sprouting during storage; ways to reduce bruising of potatoes during harvesting and marketing; and other similar problems.

Each of the nine proposals was outlined in detail, including recommendations concerning the objectives of the research and suggested funding levels, and was submitted to your Subcommittee during the Fiscal Year 1988 cycle. Accelerating research efforts in marketing and varietal development would, at this time, be considered the most effective use of increased funding.

The NPC will continue to work closely with USDA to oversee this research and will report periodically to the Congress on the progress of the research. We sincerely thank your Subcommittee for its generous support of this vitally important research. We would be happy to answer any questions you might have.

ATTACHMENT I

3--U.S. per capita utilization of potatoes, 1960-89

Total	Fresh	Processing				
		Total	Freezing	Chips & shoe-strings	Dehy-drating	Canning
		Pounds per capita, farm weight				
106.3	81.0	25.3	7.6	11.4	4.9	1.4
108.3	80.7	27.6	9.1	11.9	5.1	1.5
104.2	76.1	28.1	9.3	12.5	4.8	1.5
110.5	78.6	31.9	11.9	13.4	5.1	1.5
108.6	74.8	33.8	12.3	14.5	5.4	1.6
109.9	66.7	43.2	18.0	15.5	8.0	1.7
118.8	71.7	47.1	18.9	16.3	10.2	1.7
108.5	60.4	48.1	20.2	16.4	9.8	1.7
116.2	65.3	50.9	22.1	16.6	10.4	1.8
117.8	62.6	55.2	24.9	17.1	11.3	1.9
121.3	61.8	59.5	28.1	17.4	12.0	2.0
117.7	56.1	61.6	30.0	17.2	12.3	2.1
119.4	57.9	61.5	30.3	16.7	12.4	2.1
118.5	52.4	66.1	34.5	16.3	13.1	2.2
116.9	49.4	67.5	35.0	15.7	14.5	2.3
122.0	52.6	69.4	37.2	15.5	14.7	2.0
125.7	49.4	76.3	42.3	15.8	16.3	1.9
122.3	50.1	72.2	42.4	16.2	11.4	2.2
120.2	46.1	74.1	43.4	16.8	11.6	2.3
117.6	49.6	68.0	38.3	16.9	10.7	2.1
114.3	51.1	63.2	35.2	16.7	9.4	1.9
116.0	45.7	70.3	41.2	16.8	10.5	1.8
114.4	46.8	67.6	38.4	17.2	10.1	1.9
118.1	49.7	68.4	38.9	17.9	9.7	1.9
122.1	48.8	73.3	43.4	18.1	10.0	1.8
122.4	46.7	75.7	45.1	17.7	11.0	1.9
125.7	49.4	76.3	45.8	18.2	10.5	1.8
125.9	48.9	77.0	47.1	17.7	10.4	1.8
123.2	51.4	71.8	42.6	17.3	10.0	1.9
126.2	49.8	76.4	46.1	17.8	10.5	2.0

Economic Research Service, USDA.

NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

STATEMENT OF BOB BERGLAND, EXECUTIVE VICE PRESIDENT

EXECUTIVE SUMMARY: Rural electric systems continue to provide high quality electric service despite operating under several disadvantages, including: (a) low consumer revenue and densities; (b) high investment per consumer, and (c) the fact that 77 percent of rural electric systems have rates higher than their neighboring utilities.

Loan demand from distribution systems has risen, and there is currently a backlog of about $800 million in applications for insured loans at the Rural Electrification Administration (REA), meaning that cooperatives have to wait as long as two years for loan approval. In view of this, the Association recommends the restoration of the 25 percent reduction imposed in FY 1991 on insured loans to a floor of $622 million with a ceiling of $933 million and utilization of authorized but unobligated funds from prior years of approximately $251 million. The Association also recommends appropriations to fund the rural development provisions of the 1990 Farm Bill as well as continued funding of the Rural Economic Development Subaccount, an important program which promotes rural area development and merits continued support.

For REA loan guarantees of Federal Financing Bank (FFB) loans, the Association points out that amendments to the Clean Air act will increase guaranteed loan demand and that some rural electric distribution systems may elect to utilize loan guarantees instead of insured loans to ensure the timely financing of projects, and therefore recommends a floor of $813.45 million and a ceiling of $1.962 billion and that the REA Administrator be directed to make loans above the floor as necessary.

My name is Bob Bergland. I am executive vice president of the National Rural Electric Cooperative Association (NRECA), the Washington, DC-based service organization of the nation's 1,000 nonprofit, consumer-owned rural electric systems, which provide electric service to more than 25 million rural Americans in 46 states.

Before I discuss NRECA's recommendations for REA lending levels, I would like to provide you and the members of the Committee with a brief report on the "State of the Program."

- Rural electric systems continue to provide high quality and reliable electric service to more than 10 percent of the population of the nation. Rural electric lines span some 75 percent of the nation's land mass.

- Recent data show that rural electric systems continue to operate under the same disadvantages that have traditionally existed in the program. Rural electric systems now serve an average of only 5.2 consumers per mile of line compared with 32 customers per mile of line for investor-owned electric systems, and 41 per mile for municipal systems.

- Revenue per mile of line for a rural electric co-op amounts to $5,752 annually, compared to the $54,402 collected by investor-owned utilities and $59,134 earned annually by municipal systems. Conversely, co-ops have invested $1,634 in distribution plant for each consumer compared to $1,205 per customer for investor-owned utilities and $1,183 per customer for municipal systems.

- Today, more than 77 percent of all rural electric systems have higher rates than their neighboring utilities. This disparity can be traced to several factors:

  -- The inherent disadvantages of serving sparsely populated areas;

  -- The fact that rural electrics serve relatively few commercial and industrial loads compared to other utilities. During the past year, only about one-third of rural electric sales went to commercial and industrial consumers, compared to two-thirds in the case of municipal and investor-owned utilities. The relative absence of commercial load on co-op lines decreases load factor and increases costs to all rural electric consumers, and

  -- The fact that nearly 70 percent of the generation capacity of rural electric systems has been placed into operation during the past 15 years--a period of inflated construction costs and high interest rates.

- Rural electric systems serve areas that have been hard hit by an ailing rural economy. This has drastically reduced load growth for many rural electric systems. In fact, today 119 of the nation's 930 rural electric distribution systems are losing consumers. We hope for improvements in the rural economy that will reverse this trend. I can report improvement on another front: workout plans and/or mergers are under way to get all of our generation and transmission systems that were having financial problems back on track, and no rural electric loan has been written off the books.

I mentioned that we hope for improvements in the rural economy, and I sincerely wish I could report more progress in this respect. Instead I must share a concern. Rural electric systems, because of the flat, uncertain rural economy, have put off borrowing for system improvements for the past several years, relying instead on spot improvements and repairs utilizing internal and private funds. Now, they're at the end of the string. They absolutely require affordable REA loans to continue to provide reliable service. This is reflected in the number of loan applications from rural electric distribution systems.

At this time last year, there was a backlog of loan applications of approximately $400 million. That figure has grown today to close to $800 million.

Additionally, as part of the budget reconciliation process for Fiscal Year 1991, rural electric insured loan funds were cut by 25 percent, and that came after REA had taken a 40 percent cut in the insured loan program since 1981.

In addition, the REA Administrator has proposed a so-called "needs" test for loaning out what funds remain available. Implementation of this needs test--a means test--could further reduce the availability of REA insured loan funds to rural electric systems and assuredly does not, contrary to what Congress instructed, lessen the adverse impact of the 25 percent reduction on the rural electrification program.

A means test for rural electric borrowers is, per se, unacceptable, but beyond that, I can say that the timing is bad, if not disastrous. Unfulfilled insured loan demand is at an all-time high. We are, I hope, turning the corner and rising slowly out of a recession. However, we know from past experience that rural areas are the last to recover. In fact, some of the rural areas served by our cooperatives have not yet recovered from the last recession, despite some solid, productive economic development activities by our members and others made possible in great part by the wisdom and foresight of Members of this Committee.

Curtailment of loan funds for rural electric systems, an integral, vital infrastructure component for rural America, at the very time successful economic development programs are beginning to yield fruit is an unhappy marriage of events for rural America and an unhappy scenario for the nation.

Rural electric systems have been more than equal partners in deficit reduction. But, we may have cut clear through to the bone, and we may be doing bodily injury to the rural electric program.
I would quote from the resolution of the membership:

> "We urge Congress to authorize adequate levels of insured financing to meet the increased needs of rural electric systems as reflected by the growing loan application backlog and as indicated by the National Rural Electric Cooperative Association (NRECA) loan fund survey. In the past 10 years, insured funds have declined substantially despite continued inflation. However, insured levels must now be increased to meet the higher demands."

We, therefore, would respectfully ask this Committee to restore the 25 percent reduction in rural electric insured loans for Fiscal Year 1992.

We do not ask this lightly, Mr. Chairman. However, in doing so, we would point out that, despite the way rural electric loans have been treated on the books of the federal government, these are loan funds we're asking for, loans that will be repaid, with interest.

If the 25 percent cut in insured loans were to be restored, and if the Administrator were to use unobligated insured loan funds carried over from prior years (approximately $251 million), the substantial backlog of loan applications could be reduced. We respectfully ask Congress to require the Administrator to utilize those unobligated funds to meet loan demand in the next fiscal year.

This Committee is aware that rural electric loans are good loans and good investments. Administrator Byrne is equally aware of that fact.

I would point out that rural electric systems repaid the federal government approximately $2.8 billion during Fiscal Year 1990 while borrowing some $874 million.

I would like to quote from a resolution the Association passed in February:

> "The credit reform portions of the new law [Federal Credit Reform Act of 1990] should, once and for all, demonstrate that the Rural Electrification Administration (REA) does not give money away in the form of grants.
>
> We would expect the implementation of credit reform to show that the cost to the federal government of continuing to provide

> reliable electric power at reasonable rates in rural areas is small."

I would also call to the Committee's attention that amendments to the Clean Air Act last year may well require electric utilities to install new equipment and develop new technology to deal with the substance of those amendments. We continue to assess the impact on our systems, and, after surveys of our membership, we have estimated that the cost to the cooperative sector of the electric utility industry will be some $500 million each year for 20 years.

One final comment before I get into the specific recommendations for loan levels, and I quote directly from a resolution passed by our membership in February:

> "We commend the Congress for treating the Rural Electrification Administration (REA) Revolving Fund in a manner similar to other U. S. Department of Agriculture revolving funds by providing appropriations to offset losses."

I would add my personal appreciation to you, Mr. Chairman, and to the Committee for your actions in this respect.

Mr. Chairman, what follows are the recommendations of the Association, based on our annual Loan Fund Survey for rural electric loan levels and related matters for FY 1992.

We recommend:

* with regard to the insured loan levels, in order to reduce the loan application backlog and meet rising demand for loan funds, that the floor for insured loans from the REA Revolving Fund be restored to $622 million with a ceiling of $933 million and that the Administrator of the REA be instructed to use $251 million in unobligated funds carried over from prior years;

* the continuation of REA's current supplemental ratios and criteria with the stipulation that the ratios and criteria as of July 15, 1982 prohibit REA from implementing the proposed rule on Borrower Eligibility for Different Types of Loans as published in the Federal Register on February 20, 1991 (56 Fed. Reg. 6911);

* that levels for loan guarantees be retained at the current $813.45 million floor and $1.962 billion ceiling for FY 1992;

* that the Administrator be directed to make loans beyond the floors as necessary.

We commend the Congress for the inclusion of important rural economic development legislation in the 1990 Farm Bill.

This legislation was the first major rural development authorizing legislation enacted in nearly 20 years. It was the product of numerous hearings and deliberations.

We respectfully request that the Agricultural Appropriations Bill for FY 1992 include the following provisions, two of which are authorized by the 1990 Farm Bill:

1. $40 million for matching loans to REA borrowers for water and waste services. This provision authorizes loans to REA borrowers for water and waste services to unserved persons

in their rural communities. Funding for this new program would remedy the fact that under the current Farmers Home Administration grant and loan programs, REA borrowers are unable to participate, despite the fact that in some rural communities they would be the most logical entities to provide or assist in the provision of these services. This new program also requires that each loan be leveraged with an equal amount of capital from the borrower's own funds.

2. $10 million for rural business incubators. This provision would provide needed support for rural business incubators which provide shared services and access to management, marketing, accounting, legal and other assistance to new and emerging rural businesses. Incubators are a proven way of helping businesses to grow, thereby creating employment opportunities for rural people.

3. that language be included in the Appropriations Act to prohibit the transfer from REA to the Rural Development Administration or any other agency of any loan funds, salaries and expenses or other resources provided to REA by the Appropriations Act; and

4. that adequate salaries and expenses be provided to support a minimum REA staff level of 550 employees. We estimate that about $41 million would be required to maintain that level.

Finally, we recommend a $10 million appropriation to the Rural Development Subaccount for the purpose of encouraging rural economic development. This program is working well and merits continued support.

I would be happy to answer any questions the Committee may have.

Thank you.

NATIONAL RURAL HOUSING COALITION

STATEMENT OF ROBERT A. RAPOZA, EXECUTIVE SECRETARY

Mr. Chairman, my name is Robert A. Rapoza and I am Executive Secretary of the National Rural Housing Coalition (NRHC). NRHC is the only national membership organization which lobbies on behalf of low income rural housing and community development issues.

The President's Fiscal Year (FY) 1992 budget calls for deep reductions in federal rural housing programs for the poor. The Administration has proposed more than a $1 billion cut in direct loans for low income home ownership and rental housing and for a new subsidized loan guarantee program. There is substantial evidence that this approach will not work.

Farmers Home Administration (FmHA) administers loans, grants and related assistance for housing for low income rural people and their communities. In FY '91 some 70,000 households will receive assistance. Most will be assisted by the home ownership or rural rental housing program.

The Fiscal Year 1992 Proposal

The rural housing budget includes the following:

* Direct lending for rural housing is slashed from about $1.8 billion to $900 million.

* The emphasis of the rural housing lending programs for home ownership is shifted toward moderate income households. Section 502 direct loans for low and very low income households are cut from $1.26 billion to $541 million. Two new loan guarantee programs are proposed for home ownership: a subsidized program for low income, proposed for $347 million; and an un-subsidized program for moderate income individuals proposed for $347 million. As a result, the direct loans made to low income households will fall from about 22,000 to less than 10,000.

* Section 515 rural rental housing loans are cut from $573.9 million to $341 million and rural rental assistance (section 521(a)) is reduced from $308 million to $268 million. Section 515 unit production will fall from about 15,000 to some 7,500. The number of low and very low income households assisted under rural rental assistance will drop by about 9%.

* Section 523, Self Help housing grants and site loans are eliminated.

* Programs for home repair (sections 504, 533) and farm worker housing (section 514/516) are cut by as much as 50%.

* The Administration also proposes to spend $189 million on housing vouchers for rural areas. Similar proposals for rural areas have been rejected many times in the past.

* At the same time it is proposing major reductions in programs for low income housing, the Administration is planning to spend some $70 million for a new unnecessary bureaucratic structure: the Rural Development Administration.

The Administration Plan Will Not Work for Low Income Households

Home Ownership

In FY '91 the Congress approved $100 million for guaranteed loans. Of this amount $30 million was targeted to low income households. For FY '92, the Administration proposes to increase guaranteed loans by more than $600 million, while at the same time cutting direct loans by an equal amount.

The Administration has made this proposal without having any recent experience in making guaranteed loans for home ownership. As of this date, not a dollar of the guaranteed loan making authority provided for FY '91 has been obligated.

The budget plan will make loan making more complex as many low income borrowers will be required to obtain a loan from a conventional lender. This will be used with an FmHA guarantee and an interest credit subsidy to finance home ownership.

To the detriment of poor households, interest subsidies will be limited to an average of 5 points, which is less than current law. This will further shift the emphasis of what is now a low income program to higher income households.

Under the guarantee program, an interest subsidy will be taken on the cost of private sector mortgage lending. This rate is not only higher than the government rate but it is also greater than that of most metropolitan area banks. The budget, therefore, proposes a limitation on the amount of subsidy that is available because it costs more to subsidize a bank loan than to subsidize a government loan.

The Administration relies on local financial institutions to provide mortgage credit. There is little evidence that rural financial institutions are willing or able to pick up the slack. For example:

> * The S&L crisis has had a significant impact on rural institutions. According to a recent USDA Economic Research Service report, the rate of increase of rural thrift insolvency is nearly twice that of urban areas. There has been a 20% drop in the number of solvent thrifts operating in rural areas between 1983 and 1987, and energy belt states have been the hardest hit. The number of rural counties without an S&L increased from 502 to 574 over the last five years.
>
> * There is substantial evidence that rural financial institutions do not provide uniform loan terms and conditions. For example, a recent draft report completed for the Center for Community Change found that a bank in South Texas offered a 5 year mortgage loan with a 30% down payment; until 1989 no other financial institution in the area financed private mortgages.
>
> * Across the country rural residents typically pay one-half percent more in interest charges for mortgage credit than urban residents. Most rural residents must repay in 21 years, rather than the 29 year average repayment term of urban residents. Both these factors mean that monthly payments on a $50,000 loan are roughly 15% higher in rural areas than in urban communities.

In recent years, FmHA has shifted its agricultural lending from direct to guaranteed loans. The results have not been impressive. For example:

* Local financial institutions have shown little interest in guarantees. While the total authorization for farm operating and ownership guarantees increased from $1.75 billion in 1983 to $3.3 billion in 1988, obligations never exceeded $1.6 billion. During the same period, FmHA obligated all direct loan funds.

* Losses have been high. Since 1984 losses on guaranteed loans have increased at a faster rate than guaranteed loan activity. FmHA estimates that losses could exceed $115 million in FY '89 alone. GAO has strongly criticized FmHA's performance in managing the guarantee program.

* Existing FmHA borrowers have not been helped by guarantees. According to GAO, the increase in direct loan obligations was not a result of direct loan borrowers receiving guarantees. Rather, the increase occurred principally because private lenders obtained credit for their existing commercial customers who were experiencing financial difficulties.

Rural financial institutions are not in a position to take on a new guarantee program. The precarious nature of the thrift industry, the lack of uniformity in lending practices, and the high cost of credit make the implementation of a uniform guarantee program for low income people unlikely.

Beyond this, FmHA does not appear to have the capacity to adequately and efficiently administer a new guarantee program. Losses in a comparable farm lending program have been high and it is clear that lenders have used the program simply to shift borrowers to a government guarantee, thereby covering their mistakes. Borrowers who previously participated in FmHA programs, and who by definition have limited resources, were unable to obtain a private sector loan to be guaranteed.

There is great demand for Section 502 loans. In FY '90 close to 140,000 households submitted applications; only 48,766 or 35% of the households submitting applications were approved.

The Congress approved $100 million for guaranteed loans in Fiscal Year 1991. Until the guarantee program is shown to work, funding should not be increased.

Rural Rental Housing

The budget proposes a $230 million reduction in rural rental housing funds. This cut flies in the face of substantial evidence that there is a severe and growing shortage of affordable rural rental housing and a great demand for FmHA rural rental housing and rental assistance programs.

Important facts:

* In 1970, there were approximately 500,000 more low rent units in small towns and rural areas than there were renter households.

* By 1985, there were 500,000 fewer low rent units in non-metro areas than there were renter households. Beyond this, there were 2.5 million low income renter households, but only 2 million low rent units. And, of the 2 million units available, only 1.3 million were occupied by low income households.

* As of January 1990, FmHA had on-hand eligible pre-applications and applications for rural rental housing totalling over $2 billion or close to four times the FY '90

appropriation. In order for a pre-application to be considered eligible, the market or need for the project must be proven.

Rural Housing Need

According to the National Housing Task Force, some 4.3 million low income households in non-metropolitan areas currently experience serious housing problems. Of this number, close to two million have significant problems with the units themselves, including a lack of plumbing.

Low paying jobs and the seasonal nature of work, coupled with the downturn in natural resource based economies important to rural America, have prevented our small towns from participating in the improvement in the nation's economy in the 1980's. Non-metropolitan areas now have a higher rate of poverty and unemployment than our big cities.

Funding History

Rural housing programs were increased by about 5% in FY '90, this increase was offset, in part, by a reduction of about $60 million in section 502 direct lending in FY '91. During the 1980's rural housing programs were reduced by more than 50%.

The bulk of FmHA funding is in the form of subsidized loans. Some $1.31 billion is provided for single family loans under Section 502. Close to 90% of 502 loans are in rural areas with populations of less than 10,000. The average annual income of Section 502 is about $13,500 and the law requires that 40% of Section 502 mortgage aid go to very low income households (50% of median).

Some $574 million is appropriated for FY '91 for the Section 515 loan program. Section 515 provides reduced interest loans to public and private sponsors to finance the acquisition, construction and repair of multi-family housing for low income and elderly households. The average annual income of Section 515 tenants is about $8,000. About 40% of all Section 515 units are occupied by elderly households.

Assistance to Low Income Households

Virtually all FmHA housing assistance is limited to low income households -- those with incomes at or below 80% of the area median income. In FY '89 close to two-thirds of FmHA assistance went to very low income households -- those with incomes which do not exceed 50% of the median income.

Despite serving poor households, the FmHA program has been remarkably successful in protecting the government's interest. The 90 day delinquency rate in rural housing loans is 2.5%. Over the years, some 2 million economically disadvantaged families have gained decent housing through FmHA housing assistance.

Rural Development

The Rural Economic Development Act of 1990, Title XXIII of the Food, Agriculture, Conservation and Trade Act of 1990, (the farm bill) establishes with the Department of Agriculture a Rural Development Administration (RDA). This reorganization could have a great impact on Farmers Home Administration (FmHA).

The RDA is to administer a range of FmHA community and business programs; most of which are authorized under the Consolidated Farm and Rural Development Act. These include water-sewer loans and grants, community facilities loans, business and industrial development loans, community facilities loans, industrial development grants, rural development loan fund. In addition, other programs as the Secretary determines to be appropriate may be administered by the RDA.

The law requires that the RDA be established within 180 days from the date of enactment of the farm bill. However, the Fiscal Year 1991 Agriculture Appropriations Act, while permitting USDA to plan for reorganization, does not permit reorganization to go forward without approval in appropriations legislation.

Beyond creating the position of Administrator, the law does not address the issue of staff or expenses for the RDA. However, the President' budget does request some $73 million be transferred from FmHA for RDA salaries and expenses. The represents 925 staff years.

Most of the discussion surrounding reorganization involves transferring section 515 rural rental housing loans, as well as rural development programs to the RDA. In most states, the FmHA district office handles community and business programs as well as rental housing. The plan purportedly under consideration would transfer FmHA district offices to the RDA. Rental housing loans, self help planning grants and housing preservation grants would accompany community and business programs in such a move.

Title XXIII also established a five state rural economic development review panel demonstration. Under this demonstration, private interests, many of whom represent users of FmHA programs, will divide up rural development funds. This panel, with the concurrence of the Secretary of Agriculture, may override appropriations law.

The five state demonstration is supported by many of the same organizations that are now supporting a block grant for FmHA rural development funds currently being proposed by the National Governors Association and the National Council of State Legislatures. Implementation of this demonstration will only strengthen the hand of those wishing to bring an end to a direct federal role in rural development. Rural interests will be better served by continuing the current FmHA program and structure.

NRHC Recommendations

We recommend that the Fiscal Year 1992 appropriations for rural housing be set at the authorization levels established in the recently enacted National Affordable Housing Act. This would increase rural housing programs by some $300 million and would provide for substantial increase in rural housing lending as well as programs for farm worker housing and home repair.

NRHC also recommends that the Committee continue a provision from the 1991 bill which prevents the use of water-sewer grant funds for other uses. We also urge the Committee to adopt language which will keep FmHA programs under one roof and prevent the implementation of the state rural economic development review panel demonstration.

NATIONAL RURAL TELECOM ASSOCIATION

STATEMENT OF JOHN F. O'NEAL, GENERAL COUNSEL

SUMMARY OF TESTIMONY REQUESTS

Project involved:	Telephone loan programs administered by the Rural Electrification Administration
Actions proposed:	A continuation in FY 1992 of loan levels for the insured, guaranteed and Rural Telephone Bank lending programs in the ranges authorized for FY 1991 with the requirement that loans be approved, to the extent there are qualifying applications, up to the maximum allowable amounts.

Mr. Chairman, Members of the Committee:

My name is John F. O'Neal. I am General Counsel of the National Rural Telecom Association. Our association is comprised of commercial telephone companies which borrow their capital needs from the Rural Electrification Administration to furnish and improve telephone service in rural areas. Approximately 1000, or 71% of the nation's telephone companies borrow from REA. About three-fourths of these are commercial telephone companies. REA borrowers serve over 5 million subscribers in 46 states. In accepting these loan funds, they assume an obligation under the act to serve the widest practical number of rural users within their service area.

Mr. Chairman, continuation of a strong REA program is very important to rural America. It is imperative that this vital program not be jeopardized by philosophical opposition or by unrealistic assessments of program needs. This Committee and the Congress as a whole have strongly supported the REA telephone program since its inception in 1949. We appreciate your past efforts and look forward to an even stronger REA program for the future.

We particularly appreciate the Committee's efforts in providing the government's full contribution to the capitalization of the Rural Telephone Bank through the purchase of Class A Stock. That process is now complete. The Bank in an extremely successful example of what can be accomplished through the joint efforts of government and industry. The equity of the public, complementing the government's capital contribution, now totals $431 million and reflects borrower purchases of Class B and C stock. I am pleased to report to the Committee that the Bank continues to fulfill its Congressional mandate of providing "assured and viable sources of supplementary financing" to REA borrowers at reasonable rates of interest.

We are proud to state once again for the record that there has never been a default in the REA telephone program. All loans have been repaid in accordance with their terms with interest. At the end of FY 1990, a total of over $3 billion in principal and interest had been paid by borrowers.

Ongoing Need For The REA Telephone Loan Program

The need for the REA loan program is as great today as ever before, possibly even greater than in the past. Much of the telephone plant in rural America was installed in the early 1950's and will soon be due for replacement. Technological advances make it imperative that rural telephone companies upgrade their systems to keep pace with these improvements and provide the latest available technology to their subscribers.

The REA loan programs have successfully increased the availability and quality of telephone service to rural homes and businesses. But the task is far from complete. New communications technology and the huge increase in computer use are leading us into a new Information Age.

Sec. 201 of the Rural Electrification Act of 1936 provides two equally important objectives: "to furnish and improve telephone service in rural areas". Even though, as stated by the Administration, 96% of our nation's rural areas have some kind of telephone service, many still do not have service which is comparable to the urban areas of our country. Neither do they have access to information age services which are vital to the continued development of these areas. Most REA telephone loans made today are for the latter statutory purpose of improving rural telephone service and that job is far from complete.

As the rural infrastructure keeps evolving, the potential benefits for rural life and the rural economy are impressive. Interactive optical fiber can provide education opportunities in even the smallest towns comparable to hiring many extra teachers. Using communications for medical diagnosis, monitoring and even treatments like heart defibrillation can help combat the shortage of doctors and the rash of rural hospital closings. Improved emergency services can save lives. Businesses like telemarketing and insurance can thrive in rural areas, and telecommuting can become a realistic employment option. The success stories of Land's End in rural Wisconsin and the Citibank credit card operations outside Sioux Falls, South Dakota, would not be possible without modern telephone plants, including digital switching. In fact, there are also "cautionary tales" about businesses that can't expand or locate in rural America because the telephone system can't provide on-line ordering yet.

The REA programs are already providing financing for digital switches, more fiber between central offices and for school and medical communications facilities, helping rural communities to reap the benefits of technology. In the future, improved technology and decreasing costs will allow broadband service to American homes and businesses. The FCC's Chairman has said wise broadband deployment is "essential to our continuing prosperity and global leadership."

The REA programs are as necessary now as they ever have been: The NTIA Telecom 2000 report warned that unless rural areas are able to keep pace with urban technology upgrades, the widening gap in capabilities will make rural areas less attractive to businesses and people. Without an improved telecommunications infrastructure, as a recent Aspen Institute report put it, "major portions of rural America will be consigned to steady economic decline." The Sunbelt Institute study, Telecommunications and Rural Development, published early this year, stated:

> "Small rural telephone companies will continue to need access to low-interest loans to invest in modern equipment. The REA already has facilitated meeting the original goals of universal service, and is in the best position to help bring rural America into the information age today. If a federal commitment to universal service is made, and its goals are defined more explicitly, then perhaps the Administration will see fit to

> abandon its efforts to undermine the full potential of the REA program."

That report concluded:

> "Today, plain old telephone service is not adequate for many rural areas to survive in the information age. As part of a broader strategy to formulate a national communications policy, the country must re-commit to the idea of universal service so that rural areas will have equal and affordable access to information and information services."

The amount of loan applications pending at REA are indicative of the increasing demands for improved service to rural areas. At the end of FY 1991, completed telephone loan applications and loans carried over into the new fiscal year, totaled $259 million. As of February 29, 1991, completed applications on hand for telephone loans had jumped to $377 million. I know the Committee will agree that these figures, furnished by REA, amply demonstrate the ongoing need for this important program at current levels.

Because of continuing budget constraints, our association is recommending again this year that loan levels be retained at last year's levels. These are the ranges your Committee approved for FY 1991:

REA Insured Loans	$239.3 - 311.0 Million
Rural Telephone Bank Loans	$177.0 - 210.6 Million
REA Loan Guarantees	$119.6 - 139.9 Million

However, if the committee's budgetary allocations permit, we would request that the agency be required to approve loans, to the extent there are qualifying applications, up to the maximum allowable amounts within the ranges prescribed.

Administration's FY 1992 Proposals

Proposals contained in the President's budget again this year would severely curtail and phase out a substantial portion of the REA telephone loan program as we know it. For FY 1992, the administration proposes to eliminate insured and 100 percent guaranteed telephone loans in their entirety and partially substitute 70 percent guarantees of private sector loans in the amount of $275 million for both programs. In addition, the administration seeks to reduce Rural Telephone Bank loan levels to $125 million, increase dramatically the cost of borrowing from the Rural Telephone Bank and repeal many of the legislative reforms to the telephone program adopted by Congress in the 1990 Farm Bill (P.L. 101-624).

Mr. Chairman, there are no new initiatives or any new thinking here. Most of these proposals have been made to previous Congresses and rejected. Also, there still have been no studies conducted which would support such radical proposals. No one knows for certain what the full impact or effects would be. Two supplemental lenders, CO-BANK and CFC have indicated that guarantees of only 70% have no value to prospective private lenders. But, whatever the potential impact, we know one thing is certain: the costs of providing rural telephone service would increase further and service levels would surely deteriorate. For these reasons, we oppose them again this year.

Lack of Availability of Private Credit

Critics of REA argue that the need for the program is over because borrowers have the ability to borrow from private sources. But let us examine that. Private market lenders normally require 50 to 60 percent equities before they will extend credit. Based upon the latest available REA statistics, the average telephone borrower at the end of 1989 had a net equity of only 37.8 percent. Private lenders also require a one and one-half times interest coverage ratio test and prefer a ratio of 2 or higher. Most borrowers cannot meet the minimum test much less the preferred one. Also, it is important to note that most REA borrowers in relation to other telephone companies are very small and the territory they serve is extremely sparse. They serve 1.3 million square miles or 34.5% of the territory but less than 5% of the telephones. The average borrower serves 1,011 route miles of line. The median borrower has only 2,253 subscribers. Borrower density is 4.23 access lines per square mile. In contrast, the regional Bell operating companies average over 80.

Because of the relative small size of these loans, individual borrowers could not go to the private credit markets for capital. Even those few borrowers which could obtain credit in the private markets would find the terms extremely burdensome. Most banks or other lenders either will not or cannot make the long-term loans that are necessary for telco plant investment. Banks typically will lend for no more than 15 years in contrast to REA's loans of 35 years. And, of course, the interest rates would be prohibitive if the loans would be made at all.

Who would pay for these increased costs? As utilities whose rates are based upon their costs, increases in costs would necessarily have to be borne by rural ratepayers who are already burdened with extremely high rates. Federal access charges alone now total $3.50 per month, an amount that is mirrored in many states as a state access charge, and the cost of providing service in these high-cost, low-density areas continues to escalate. The REA loan programs provide targeted assistance to these areas.

Conclusion

Mr. Chairman, the REA program continues to face its greatest challenges. However, it withstands these annual assaults because it is a sound federal program that is time-tested and works. And, it is needed today more than ever before. Rapid technological change and federal policies of competition and deregulation in the telephone industry underscore the need for targeted assistance to rural areas. Rate pressures in rural areas are already burdensome with predictions that some rates will double or even triple in the foreseeable future. Without the credit assistance provided by REA, even greater pressure would exist for rate increases to local subscribers.

The value of this assistance to rural ratepayers continues to far outweigh the costs.

Also, many fail to recognize that without the REA program the quality of telephone service in rural areas would also deteriorate. That is certain because the REA Act imposes a higher standard of service than would otherwise be required of borrowers. In the old days, if carriers provided service at all in rural areas it was only down the main roads because service on any other basis was not economically feasible. Today, thanks to the Congress and the REA legislation, telephone service is provided to the "widest practical number of rural users" in each borrower's service area -- a mandate that REA strictly enforces and a standard of service that the borrower voluntarily assumes when it receives a loan from REA.

Thank you again for the opportunity to present our views concerning this vital program which is as worthy and necessary today as it was when enacted in 1949.

NATIONAL RURAL WATER ASSOCIATION

STATEMENT OF CLARK CRONQUIST, MEMBER, NORTH DAKOTA RURAL WATER SYSTEMS ASSOCIATION

Mr. Chairman, thank you for allowing me, as a member of the North Dakota Rural Water Systems Association and a Board Director of the National Rural Water Association (NRWA), to appear before your Committee today. I am here on behalf of rural water folks all over this country to thank you for the generous and very important increase given the rural water and sewer grant program last year. These funds are being used to great advantage by many small water systems to improve people's health, strengthen local economic opportunity and assure that rural America stays strong. We want also to express our deepest appreciation for your help in providing an increase in our rural water circuit rider program last year which has enabled us to strengthen the program in all states. We are here today to request the continued support of you and the Committee for these two very important rural programs and for the recently established rural wastewater Circuit Rider.

Specifically, we are requesting:

- funding for the FmHA rural water and sewer grant program at $300 million and the loan program at $600 million

- funding for the Circuit Rider technical assistance program at $4.2 million to allow for a more intense use of circuit riders in areas of the country affected by the most serious environmental problems.

Our primary reason for requesting the increase in the water and sewer grant and loan program is the growing recognition that water and sewer services are a basic element to rural development in this country. As environmental and health expectations rise, the need for safe and clean water has become a necessity for rural residents. Community water systems provide this service. FmHA grants and loans allow those residents to build systems and to repay the loans over an extended period. Without the current assistance from FmHA, most rural residents could not initiate the construction of new systems and the expansion of existing ones. Additional funding will allow more rural Americans the opportunity to have access to a safer water supply.

In the discussions surrounding last year's rural development legislation in the House and Senate, many of us were struck with the fact that the rural water and sewer program has such broad support in Congress. However, we were also very aware that without your personal support of the program and the support of this Committee, that the program would not be operating today. It is impossible to overestimate the debt that rural America owes you for standing firm for rural water over the past ten years.

However, there is one program in the new rural development bill which we oppose receiving any appropriation until it is opened up to all rural water systems. The authorization of $40 million for a water loan program exclusively for use by rural electric cooperatives shuts out many small water systems with economic development needs. Funding a program providing interest rates of less than 5% only to REC's while even the lowest income small water systems must pay 5% provides a deep subsidy to RECs that is not available to poverty areas or non REC rural areas seeking help on economic development projects. Small water systems and small towns should have equal access to this program -- everyone needs economic development related to water system assistance. Until the REC's agree to go with us to Congress and amend the program to allow access to the program for all rural water systems we strongly urge you to not provide an appropriation for the program. A REC-NRWA Committee -- with equal representation from both groups -- voted 10-0 to open the program to all small systems. It is the NRECA staff that is withholding support for this change. If the program goes unfunded this will be a strong stimulus to open up the program.

The importance of the FmHA grant and loan funds grows each year as the Federal government presses for higher and higher environmental standards on small water systems. The goal of FmHA has always been to bring safer drinking water to rural residents. However, now EPA has strengthened its role through both the Safe Drinking Water Act (SDWA) regulations and the deadline on compliance with the Clean Water Act. These federal requirements are dramatically increasing the cost of managing rural water and rural wastewater systems. In response, small communities have gone to their state governments for help and in some cases have received new resources. However, in these and other cases it would be impossible to gain new financial support without the critical "seed money" that the FmHA grant funds provide for projects in low income areas of each state. These grant funds are highly leveraged and the increase in the grant program is having a multiple impact on the improvement of small water and sewer systems throughout the nation.

This funding is vital to most small water systems because rural water districts do not have the legal standing to float bonds, levy taxes or seek other types of public financing. Private financing as a sole source has seldom been an alternative because of its high cost and consistent unavailability. With a repayment rate on FmHA water and sewer loans of over 99%, this is the soundest government loan assistance program in the nation.

The Environmental Protection Agency (EPA) continuously cites the FmHA rural water and grant loan program as the major source of funding assistance to help small rural systems meet SDWA requirements. During Congressional testimony, a question to EPA received the following response:

> The Agency has met with the FmHA in an effort to ensure that adequate financial support is and will continue to be available to small water systems to meet additional requirements imposed by the Safe Drinking Water Act.

In effect, we have one federal agency imposing regulatory requirements and relying on another agency (FmHA) to provide funds to support compliance. It is in rural areas which the FmHA grant and loan program is critical to SDWA compliance. The second area of our concern is the assistance available to help improve the operation and maintenance of existing rural water systems. Most rural water systems were developed because neighbors got together and decided that something had to be done about their collective poor quality or lack of water. These people formed water districts, signed up customers, borrowed funds from the only source available - FmHA - and set up a small water system operation with part-time personnel.

These systems are as varied in their size and structure as rural America itself. Many users are still small "mom and pop" operations; others have grown from a few hundred households to several thousand, while many small towns are having serious operational problems with old and worn out water systems. The common problem among these systems is the need to improve the quality of the water while continuing to provide water in the most cost effective manner possible.

What has evolved from this need is the rural water circuit rider technical assistance program now operating in forty-eight states, thanks to the action of this Committee last year. There is one Circuit Rider in North Dakota and we are expanding the wastewater Circuit Rider program to include North Dakota this year. A full-time rural circuit rider, working under the oversight of each state rural water association, is available to provide hands-on assistance and guidance to all rural water systems in every state regardless of size or problem. This has allowed many rural systems to steadily improve the efficiency of their operation and the quality of the water delivered. In 1990, the North Dakota Circuit Rider program assisted rural water systems with 454 Technical Assistance contacts in every county in the state -- an average of 38 technical assistance contacts per month. Approximately one half of these contacts made were in response to direct calls for help from water and wastewater system personnel. Circuit Riders have saved significant amounts of money in preventing water loss, reducing the need for replacement of pipes, pumps and other equipment and in working with systems to set adequate water rates in order to provide funds for continuous preventive maintenance. Often these savings are used to reach new customers or make improvements required by the SDWA.

During the past year, the Circuit Riders have visited over 24,203 rural water systems throughout America to provide hands-on help. The new state circuit riders in the additional states have expanded their activities. We believe that having a national border-to-border program is having a dramatic impact on the upgrading of small water systems in those areas with the most serious water problems.

In addition to the rural water Circuit Rider, twenty-seven state rural water associations participate in the FmHA funded rural wastewater Circuit Rider program. Funding for the Circuit Riders is received through the two percent FmHA technical assistance program and has been extremely important to small rural waste treatment systems. With Clean Water Act compliance deadlines this year, many small systems are being cited for non-compliance. With the Federal wastewater funds winding down and the use of revolving loan fund required there is a growing need for on-site assistance to guide these systems in meeting higher standards. As with many small water systems, the funding help is limited, but the federal requirements are being expanded. We are finding that the wastewater Circuit Riders are frequently the only help available to small sewer systems and that demand for help is often even greater than that from small water systems. We appreciate the FmHA support in funding this program.

In another area, we support the continuation of the solid waste technical assistance program at last year's level. We also urge that the program be available for organizations working within one state where there would be the most effective method for strengthening rural solid waste management programs.

Finally, we would appreciate your assistance in protecting small systems under FmHA 1926(b). If possible, we would like to have the FmHA 1926(b) provisions extended to protect rural water systems with FmHA grants as well as those with only FmHA loans.

One special request we are making is that you consider increasing the funding for the circuit rider program to $4.2 million a year to provide for circuit riders in high environmental risks areas and to Alaska and Hawaii. The SDWA requires small water systems to test for over eighty new contaminants over the next three years. Circuit Riders have been the primary assistance available to the smallest and most out-of-compliance rural systems.

In closing, we want to again thank you for your past support of rural water and to urge you to increase the funding level for the FmHA rural water loan program to $600 million, retain the FmHA grant program at $300 million and provide $4.2 million for the Circuit Rider program.

CIRCUIT RIDER PROGRAM
TECHNICAL ASSISTANCE SUMMARY
JANUARY 1, 1990 - DECEMBER 31, 1990

	TREATMENT & OPERATIONS/ MAINTENANCE	MANAGEMENT/ FINANCE	OTHER	TOTAL CONTACTS
1. Alabama	367	10	00	377
2. Arizona	368	32	23	423
3. Arkansas #1	346	287	00	633
4. Arkansas #2	237	370	03	610
5. California	369	14	11	394
6. Colorado	477	05	08	490
* 7. Connecticut/RI	212	00	74	286
* 8. Delaware	287	15	06	308
9. Florida	379	173	67	619
10. Georgia	186	241	05	432
11. Idaho	403	15	05	423
12. Illinois	402	59	06	467
13. Indiana	218	172	39	429
14. Iowa	274	241	03	518
15. Kansas	352	83	27	462
16. Kentucky #1	357	98	75	530
17. Kentucky #2	447	69	15	531
18. Louisiana #1	297	60	87	444
19. Louisiana #2	312	69	68	449
20. Maine	318	64	73	455
21. Maryland	484	29	02	515
22. Michigan	248	112	134	494
23. Minnesota	274	163	07	444
24. Mississippi #1	366	139	102	607
25. Mississippi #2	243	170	111	524
26. Missouri	314	108	02	424
27. Montana	410	63	34	507
28. Nebraska	417	55	36	508
*29. Nevada	155	57	16	228
30 New Jersey	438	77	26	541
31. New Mexico	273	197	50	520
32. New York	417	08	00	425
33. North Carolina	371	35	29	435
34. North Dakota	292	117	45	454
35. Ohio	330	106	26	462
36. Oklahoma #1	232	198	01	431
37. Oklahoma #2	384	100	24	508
38. Oregon	332	80	27	439
39. Pennsylvania	325	149	26	500
40. South Carolina	158	281	00	439
41. South Dakota	360	81	44	485
42. Tennessee #1	264	171	85	520
43. Tennessee #2	263	84	51	398
44. Texas #1	206	222	20	448
45. Texas #2	130	308	06	444
46. Utah	396	30	56	482
47. Vermont/MA/NH	517	26	13	556
48. Virginia	277	156	42	475
49. Washington	363	69	23	455
50. West Virginia	523	06	06	535
51. Wisconsin	311	157	12	480
*52. Wyoming	107	80	53	240
Total	16,768	5,711	1,704	24,203

* - Modified (½ Time) Programs

NATIONAL TELEPHONE COOPERATIVE ASSOCIATION

STATEMENT OF MICHAEL E. BRUNNER, EXECUTIVE VICE PRESIDENT

INTRODUCTION

Mr. Chairman, members of the committee, my name is Mike Brunner and I am the Executive Vice President and Chief Executive Officer of the National Telephone Cooperative Association (NTCA). NTCA represents nearly 500 small locally owned and operated rural cooperative and commercial telephone companies in over 40 states. The majority of NTCA members utilize Rural Electrification Administration (REA) and Rural Telephone Bank (RTB) financing to one degree or another. For this reason I particularly appreciate the opportunity to review the ongoing necessity of these programs with you.

EXECUTIVE SUMMARY

The forty-two year old telephone loan program of the Rural Electrification Administration (REA) has successfully brought modern affordable telecommunications services to the vast majority of rural America. Yet the Rural Electrification Act mandates the provision and upgrading of service and facilities. With technology constantly changing, the need for the program has only grown.

To carry out the mission of the REA and Rural Telephone Bank (RTB) telephone lending programs, full funding at the fiscal year (FY) 1990 levels will be necessary. Increased allocations for the REA's salaries and expenses is also required as are minor references in act or report language which ensures such funds cannot be transferred away from RE Act activities and to ensure that engineering, standards and auditing functions are maintained and carried out by and at the expense of the agency.

REA/RTB REMAIN ESSENTIAL

NTCA's member systems evolved to provide telecommunications service to those regions of the country that were largely overlooked by the industry's early leaders. These small cooperative and commercial telephone systems, in partnership with the REA, have played an essential role in ensuring that our national telecommunications objectives are achieved. Yet, the job of this partnership is far from complete. The telecommunications industry continues to undergo vast change and because the Rural Electrification Act (RE Act) specifies that the true mission of the REA is to "furnish and improve telephone service" REA/RTB capital must remain available for telcos to meet the extraordinary demands of today's rural telephony.

To carry out our mission, full funding at the fiscal year (FY) 1990 levels for the REA/RTB telephone loan programs is warranted. NTCA specifically recommends the following FY 1992 funding levels: REA direct loans - $239,250,000 - $311,025,000; REA guarantees - $119,625,000 - $138,765,000; and RTB direct loans - $177,045,000 - $210,540,000. In addition, a total appropriation of $41.5 million for REA salaries and expenses will be necessary to ensure proper administration of the telephone loan programs.

Are these funding levels necessary? You bet they are! Yet, quite frankly there will be those who believe our request is too bold considering the fact that it does not conform with the cuts specified by last fall's budget reconciliation process. In reality, the initiative to cut the direct loan program was adopted in a hurry with little discussion of its merit of which there were none. As a result, it did not address the real need that exists for the program.

At the close of last fiscal year, September 31, 1990, REA had a total of 43 completed applications on hand totalling $235,983,006, of which 7 totalling $18,199,650 were ready for immediate approval and funding. Because telecommunications development plays such a central role in many rural development initiatives, experts within the industry and the agency itself predict demand for the program will grow during the next several years as the telecommunications industry struggles to assist rural communities in their revitalization efforts.

REA/RTB ENCOURAGE RURAL DEVELOPMENT

In decades past, scores have left America's peaceful rural haven for what were perceived to be more promising futures in terms of economic stability and quality of life. Yet as population, pollution and the cost of living escalate in our urban centers, this theory is increasingly being reexamined. We have worked so hard to ensure that America maintained its rural heritage and we must work equally hard in the future to ensure leaders of tomorrow do not overlook these regions as economic policies are developed. The nation's rural areas offer unlimited resources to individuals, small businesses and corporations. Yet one problem has persistently stood in the way of economic development in rural areas -- distance.

Its never been a secret that distance is a rural region's greatest obstacle. Concurrently, its no secret that in today's hi-tech world these obstacles can be easily overcome through the use of advanced telecommunications infrastructure. In other words, telecommunications development can play a significant role in determining the economic viability of the nation's rural communities. The point to keep in mind is that rural development is attainable and there are hundreds of examples of successful initiatives that were made possible largely through the development of local telecommunications infrastructure. Major obstacles can be overcome through local leadership and modest investment by the federal government (in the form of REA/RTB loans). Without REA, a majority of this development would be difficult to attain.

Throughout the nation's history, our federal leaders have concerned themselves with the plight of rural America, though their level of attention has varied from decade to decade. Recently, with such a considerable national focus on the issue, Congress and the president spent countless hours investigating and responding to the economic needs of rural America. NTCA and the other telephone associations participated in the crafting of a legislative response, the Rural Telecommunications Improvement Act (RTIA), that was ultimately enacted as part of Public Law 101-624. The basis of the RTIA was to follow the advice of rural leaders across the nation, and that of the administration too, which was to rebuild rural America through existing programs that have been successful. As perhaps the nation's premier rural development tools, the REA/RTB telephone loan programs are perfectly suited to respond to this call.

REA/RTB MEET THE CHALLENGES

Ignoring the rural development aspects of the REA/RTB programs for a moment however gives us a chance to question whether there is any other reason for the continued existence of the programs. There is. Over two million rural residents remain without even the most basic form of telephone service. Of those who are "hooked up", 5 percent are still subjected to party-line service. And the provision of modern, dependable and yet affordable telecommunications service to rural America remains a formidable venture considering the fact that in most rural areas of the country there are only a handful of subscribers per mile of access line compared to hundreds or even thousands in urban areas. Interestingly, subscribers of REA borrowers comprise only about 4.3 percent of the total telephone subscribers in the United States, yet their service areas cover 37 percent of the nation's land area. As a result the average investment in telephone plant per subscriber for all REA borrowers is currently $2,429 and in the case of states with more remote geography, such as North Dakota, the numbers can average as high as $3,331.

Fortunately, Congress has historically understood the significance of the REA/RTB telephone loan programs. In fact it is through the foresight of visionaries such as yourselves, that rural telephony is stronger than ever before. Rural telephone systems presently serve over 5 million homes and educational, religious and commercial facilities throughout the U. S. states, territories and commonwealths. In addition, rural telephone systems have helped start and expand thousands of new public and private projects. These efforts have produced hundreds of thousands of new jobs. In fact, the REA's telephone borrowers alone employ nearly 30,000 full-time workers.

ADMINISTRATION'S INTENT REMAINS UNCLEAR

On the other hand, the current administration, similar to the previous one, appears to display a lack of appreciation for the value of the REA/RTB telephone loan programs. Though initially alarmed by the president's first budget proposal, which was released in early 1989, our industry's fears did, for a time, subside as the President steadily unveiled his rural conscience. First, the President ordered a critical review of the United States Department of Agriculture's (USDA) rural development programs. From this, recommendations for improving the programs' performance were developed. Later President Bush issued a white-paper outlining his thoughts on the rural agricultural sector. He also instructed his appointees within USDA to remain vigilant to the needs of all facets of the rural economy. In addition, President Bush endorsed a comprehensive plan formulated by his Economic Policy Council's Working Group on Rural Development. Finally, his Administration endorsed the concept of rural economic development and encouraged accomplishing it through enhancement of existing programs.

Overall, the President appeared to embrace a genuine concern for rural America and its many needs. But as 1990 progressed, several actions by the administration called into question the President's sincerity. Our disappointment only increased upon review of the President's FY 1992 budget proposing to restructure the REA and RTB telephone lending programs in such a manner as to render these effective rural development tools virtually useless. Specifically, for FY 1992, the President proposes to: terminate the REA direct and guaranteed loan programs; reduce annual RTB direct loan limits from $177 million to $125 million; increase the RTB direct loan rate; initiate a new RTB 70% guarantee program; reinstate many of the REA's restrictive policies that were eliminated through provisions that were included in the 1990 farm bill.

CONCLUSION

Mr. Chairman, as you can see, the Administration is proposing to abandon a time-tested and financially stable direct loan revolving fund in favor of unworkable and ill-conceived alternatives. NTCA and its members are not in a position to accept such philosophical changes. Our rural areas are sparsely populated and the terrain often difficult to overcome. As the telecommunications industry continues to undergo vast change, new competitive forces are always evolving. These factors equate heavy costs. The capital that is necessary for rural telecommunications development often leaves many of our members with a questionable paper-equity, and commercial lenders generally will not lend in these situations -- especially with only a partial government guarantee.

As I discussed earlier, rural areas by way of their sparse populations remain costly to serve. Were these rural telephone companies forced to borrow exclusively from private sector lenders, the rural infrastructure could very well languish to the point where the differences between rural and urban telephone service would appear similar to the disparity we knew in the 1950s.

The Administration has also historically failed to acknowledge that the REA/RTB telephone loan programs are not nearly as costly as they have so often portrayed them. The programs simply do not require vast capital outlays by the federal government. The only real costs associated with the programs are the relatively minor difference in the cost of interest to the government and the rate at which it is loaned to borrowers and of course those associated with the normal administration of the program. These costs are all Congressionally mandated. In fact, by its own admission, the administration estimates these so-called subsidized costs to only amount to approximately 17 percent of the actual loan levels. The real costs of the programs are minimal -- especially in comparison with the benefits they provide.

As I have stated, despite the telecommunications industry's outstanding progress in serving rural America, a great deal remains to be done. And new challenges will continue to evolve. The needs of rural America have grown and Congress has responded by redefining the agency's mission from time to time. However, one thing has always been certain and that is the fact that rural telecommunications would always play a central role in the exploding information age that continues to evolve. Advanced telecommunications can ensure that all Americans are able to participate in the revolution of the information age. Yesterday fiber optic and digital switching capabilities were but dreams. Now they are reality. A strong REA can help ensure the development of future dreams such as photonic switching.

Rural America can provide all Americans with a host of benefits, and making efficient use of our resources should be our highest priority. It is my sincere hope you will continue to make the best use possible of known quantities -- the REA/RTB telephone loan programs. Thank you for your time and your kind consideration of NTCA's requests.

NATIONAL UTILITY CONTRACTORS ASSOCIATION

STATEMENT OF RON PACELLA, PRESIDENT

Introduction

Mr. Chairman and members of the Subcommittee, my name is Ron Pacella, President of the National Utility Contractors Association (NUCA). I also serve as President of a construction firm, R J V Construction, in Canton, Massachusetts.

Our 2000 members nationwide take great pride in building America's clean water infrastructure because it is a necessary component of civilized society. Businesses and industries place the condition of an area's water and sewer system near the top of their list of criteria in determining whether to build, expand or relocate. Without an adequate and accessible supply of clean water in our nation's rural communities, local prosperity grinds to a halt -- plain and simple.

Despite great progress in the reduction of point-source pollution, our industry can attest to a serious wastewater and drinking water capital shortfall in the United States today. The Subcommittee is well aware of the fact that many towns and cities have been placed under court-ordered "sewer bans," which means they are unable to build new homes and businesses. The fact that the need for sewage treatment plants and new pipes in our small towns lacks the excitement of collapsing bridges and knee-deep potholes in our urban centers is no reason for complacency. We therefore commend the Subcommittee for its ongoing attention to this serious, but manageable, rural emergency.

Summary of Appropriation Request

In light of the nation's urgent and severe water infrastructure needs, NUCA urges the Subcommittee to appropriate at least $880 million to the Farmers Home Administration (FmHA) Water and Waste Disposal grant and loan programs in FY 1992, the same amount appropriated in FY 1991.

The National Clean Water Investment Gap

Across the country, there is an enormous gap between clean water facility requirements and the dollars available to bring them on line. The magnitude of this environmental infrastructure deficit is documented in an independent study produced by Apogee Research, Inc., of Bethesda, Maryland, and released by the Clean Water Council, a new and growing coalition of organizations committed to America's clean water future.

The report, America's Environmental Infrastructure: A Water and Wastewater Investment Study (hereafter referred to as the Apogee study), projects a combined national drinking water and wastewater treatment construction shortfall of $79 billion for the years 1993-2000. Nearly $62 billion of this total (or $7.7 billion per year) represents underinvestment in wastewater facilities. The remaining $17 billion (or $2.1 billion per year) of the $79 billion total represents the estimated capital shortfall for drinking water. If the forecasts hold true, 44 of the 50 states will face water and wastewater capital shortfalls over the eight year period 1993 to 2000 (see Table 3 on page 4). The active involvement of the federal government in water and wastewater treatment financing is crucial.

While the cost of closing this water and sewer construction gap is substantial, the situation is not totally discouraging because the benefits of public investment in clean water infrastructure are enormous.

The Benefits of Clean Water Investment

The importance of a safe drinking water supply and an adequate system of wastewater treatment to public health, public safety, and the environment is obvious. For example, health is clearly dependent upon water systems which remove and prevent contamination. The recent Latin American cholera epidemic demonstrates the worst-case scenario of what happens when water quality is ignored. It is of concern that there are places in this country where people still rely on outhouses for sanitation.

Similarly, environmental integrity is a demonstrably important function of waterworks investment. Though a great deal of improvement can be made in this area, our previous investments have improved water quality in thousands of miles of polluted rivers and hundreds of thousands of acres of contaminated lakes. These healthier ecosystems now provide safer opportunities for recreation and enhanced fish and wildlife habitat.

Not to be overlooked are the effects of clean water investment on local economies. First, new construction always helps to jump-start business during times of severe downturn -- just like we are experiencing right now. New projects get productive workers off unemployment and back on the tax rolls.

Water and wastewater treatment infrastructure is also linked to long-term economic growth and productivity. The common sense notion that water and sewer facilities are a precondition for housing, vital services, and industrial and agricultural production is an incontrovertible reality. Moreover, these same facilities promote American competitiveness in world markets.

The astounding extent to which environmental infrastructure strengthens the private economy is also documented in the Apogee study. The authors used sophisticated econometric models, recently developed by Dr. David Aschauer, to demonstrate that a scenario of enhanced public investment in these facilities results in: (1) Increases in private profitability; (2) Increases in private investment in new facilities and equipment; and (3) Dramatic increases in the rate of output per unit of labor.

Finally, the Apogee study finds a positive revenue implication in federal revenues for public entities that build and operate clean water facilities. For example, a $2.5 billion investment in these vital services pays for itself in less than ten years through increased federal tax revenues.

It is clear that clean water progress carries substantial benefits as well as a high price tag.

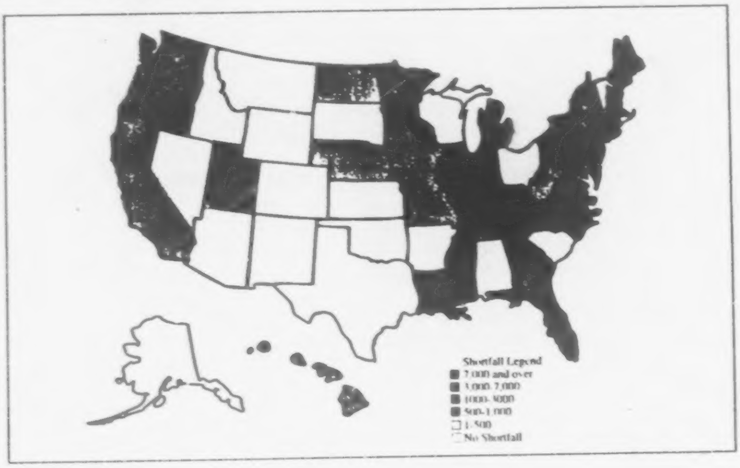
Appropriation Request

NUCA urges the Subcommittee to appropriate at least $880 million to the FmHA Water and Waste Disposal grant and loan programs. A federal commitment of this magnitude will not close the investment gap in the short term, but it will help to reduce the enormous capital shortfalls which plague our less populous communities.

I can appreciate the tough choices that the Subcommittee has to face in today's fiscal climate. However, let me put into perspective our federal water pollution commitment. Grandparents spent three times more on toys last year than the federal government is spending on the FmHA Water and Waste Disposal appropriation this year ($880 million). Speaking as a grandfather who is concerned about future generations, let us continue the resolve to leave our water resources, the most basic of all needs, better than when we found them.

The National Utility Contractors Association stands ready to assist the Subcommittee in any way it can to acheive the goal of universal clean water. Thank you for the opportunity to present our views on this vital matter.

TABLE 3: COMBINED DRINKING WATER AND WASTEWATER CAPITAL SHORTFALLS



TOTAL SHORTFALL

Total Shortfall 1993-2000
Millions of $1988

UNITED STATES	79,132	Missouri	606
Alabama	222	Montana	450
Alaska	*	Nebraska	842
Arizona	73	Nevada	435
Arkansas	756	New Hampshire	863
California	2,208	New Jersey	3,372
Colorado	*	New Mexico	271
Connecticut	2,202	New York	18,517
Delaware	362	North Carolina	1, 880
D.C.	744	North Dakota	627
Florida	4,400	Ohio	320
Georgia	862	Oklahoma	*
Hawaii	551	Oregon	2,319
Idaho	188	Pennsylvania	4,575
Illinois	1,116	Rhode Island	397
Indiana	1,523	South Carolina	149
Iowa	583	South Dakota	*
Kansas	393	Tennessee	1,093
Kentucky	1,954	Texas	*
Louisiana	1,094	Utah	1,254
Maine	1,118	Vermont	70
Maryland	1,872	Virginia	1,216
Massachusetts	3,203	Washington	2,008
Michigan	6,040	West Virginia	506
Minnesota	2,315	Wisconsin	280
Mississippi	1,006	Wyoming	*

* Signifies that the particular state had projected capital spending in excess of needs in both drinking water and wastewater treatment.

NATIONAL VOLUNTEER FIRE COUNCIL

STATEMENT OF E. JAMES MONIHAN, CHAIRMAN

I appreciate the opportunity to submit testimony to the this subcommittee on behalf of the National Volunteer Fire Council (NVFC) regarding the FY92 appropriation for the Farmers Home Administration. The NVFC, an association of 43 state volunteer firefighters' organizations, was organized in 1976 to represent the interests of the volunteer fire service on federal issues.

As one of few federal programs that provides direct assistance to small, rural volunteer fire departments the Rural Community Fire Protection Program (RCFP) is of particular concern to the NVFC.

The RCFP provides funds for rural communities of under 20,000 to train, organize and equip themselves to prevent and suppress fires. Fire departments in these communities are virtually all volunteer and have a very limited community or tax base from which to draw support. Many of these departments keep afloat on a year-to-year basis through such tenuous means as bake sales, bingo games and raffles. The funding provided through the RCFP is therefore critical in these communities.

RCFP funds are used by these departments in a number of important ways to improve fire protection in rural communities. Refurbishment of federal excess property for firefighting purposes is a common application, as is providing training to which rural firefighters might not otherwise have access. All RCFP funds are matched by the local communities on a 50-50 basis.

Although the RCFP was authorized under the Cooperative Forestry Assistance Act of 1978 for $7 million annual funding, the program has never received an appropriation of over $3.5

million. The U.S. Forest Service has been careful to pass on all of appropriated funds to the regional forestry directors with no allowance for administrative costs. The RCFP is exemplary among federal programs in that fire departments and fire districts, the intended beneficiaries of this program, receive almost 100% of the funds appropriated to it.

In recent years, the volunteer fire service has suffered from an erosion of interest in volunteerism, lack of funds, and unavailability of training. These problems are particularly acute in very small communities. The tragedy is that these communities continue to experience significant losses of life and property to fire even as access to fire protection is eroded by the scarcity of men and resources. Since 1978, the RCFP has been successful in getting resources down to communities where they are the most scarce. In 1989, for example, Congress appropriated $3.02 million for the RCFP. Of this, 220 departments in Iowa received a total of $104,500, 103 departments in North Dakota received a total of $70,000, and 393 departments in Texas received a total of $156,700. In the scheme of the federal budget, these grants may appear to be of slight significance, but I assure you that they make a very great deal of difference to the quality of fire protection provided in small communities.

The NVFC urges the Members of this Subcommittee to restore funding for the RCFP and to continue to support the efforts of America's volunteer firefighters. Again, the NVFC thanks the Members of this Subcommittee for this opportunity to present the views of the volunteer fire service regarding the Rural Community Fire Protection Program.

NORTH AMERICAN STRAWBERRY GROWERS ASSOCIATION, INC.

STATEMENT OF TIMOTHY NOURSE, CHAIRMAN, NASGA LEGISLATIVE COMMITTEE

SUMMARY OF

PROBLEM AREAS IN STRAWBERRY PRODUCTION FOR WHICH URGENT RESEARCH NEEDS EXIST

I BIOTECHNOLOGY and CROP GENETICS (New Programs, $ 300,000)

- A. New Molecular Geneticist Position ($ 200,000)
- B. Genetic Diversity and Variety Development ($ 100,000)

II REDUCTION OF PESTICIDE USE (New Programs, $ 500,000)

- A. New Virology Position ($ 200,000)
- B. Anthracnose Research ($ 150,000)
- C. Insect Resistance ($ 150,000)

III CONTINUING USDA/ARS PROGRAM SUPPORT ($ 900,000)

- A. Cooperative Breeding Programs
- B. Plant Disease Research

In addition, the North American Strawberry Growers Association, Inc. supports the USDA's food safety initiatives, "minor use" pesticide registration efforts and "joint ventures" with Cooperative State Research Service programs related to the strawberry industry.

SECTION A

The North American Strawberry Growers Association (NASGA) recommends that $ 800,000 be added to the budget of the USDA Agricultural Research Service for strawberry research in the Small Fruit Crops Improvement Program. NASGA requests that the increased funding be implemented beginning with the 1992 fiscal year. NASGA supports this new funding over and above the current minimun level of approximately $ 800,900 which represents a decrease of $ 790,000 or 50% since 1988. NASGA's urgent needs include the following:

URGENT NEEDS	FISCAL YEAR FUNDING LEVEL		
	1992	1993	1994 & cont
BIOTECHNOLOGY and CROP GENETICS			
A. New Molecular Geneticist	$ 200,000	$ 200,000	$ 250,000
B. Genetic Diversity	$ 100,000	$ 100,000	$ 150,000
REDUCTION OF PESTICIDE USE			
A. New Virology Position	$ 200,000	$ 200,000	$ 250,000
B. Anthracnose Research	$ 150,000	$ 150,000	$ 150,000

C. Insect Resistance		$ 150,000	$ 150,000	$ 200,000
CONTINUING PROGRAM SUPPORT (USDA/ARS)		$ 900,000	$ 985,000	$ 1,100,000
	TOTALS	$ 1,700,000	$ 1,785,000	$ 2,100,000

JUSTIFICATION - The U.S. is the world leader in strawberry production with 20-25 percent of the total world market. Strawberries are a healthy and nutritious food. They contain high levels of vitamin C and fiber but are low in calories (55 calories per cup) and sodium. Recent research at the USDA/ARS Small Fruit Crops Improvement Program at Beltsville, MD found that the level of ellagic acid, an anticancer agent found in strawberries, may be increased through breeding.

Growers want to produce strawberries using fewer plant health chemicals, have less negative impact on their environment and save on costs as well.

Strawberries have unique problems associated with production, pest control and marketing. NASGA members tax themselves and have provided $ 25,000 each year, for nearly ten years, to support pertinent and timely research at the USDA/ARS in Beltsville and other experiment stations throughout the U.S. Unfortunately, funding at the Federal level has dropped dramatically in the last few years and NASGA is highly concerned about this pattern.

The strawberry industry looks to the USDA/ARS in Beltsville for leadership and it is urgent that their research support be increased. Please consider the following programs and give them your full support.

BIOTECHNOLOGY and CROP GENETICS - To conduct research that will increase the potential for variety improvement through the application of current moleular biotechnology and utilization of new genetic resources.

A. New Molecular Geneticist Position: Strawberry varieties need to be improved continuously in order to satisfy the needs of consumers as well as allowing growers to produce strawberries economically. The molecular geneticist has wonderful new tools to increase the rate of plant improvement. For example, pieces of genetic material carrying useful genes can be attached to gold particles and "shot" into hosts with a "gene gun." The molecular geneticist will develop an understanding of the total strawberry genome including nuclear, mitochondrial and cytoplasmic genes and determine ways to transfer them. The genes for pest resistance, reduced water or fertilizer use, increased photosynthetic ability and strawberry fruit size are major topics for investigation. This scientist would cooperate closely in the standard breeding and variety evaluation program.

B. Genetic Diversity and Variety Development: Vast sources of native and exotic strawberry germplasms have been collected in the U.S., Chile, etc. in the last few years. These plants need to be maintained, characterized as to type and incorporated in the USDA cooperative breeding program. In the U.S., there are over 134 varieties of strawberries, but only 17 parents are used as genetic sources. This lack of genetic diversity is of great concern due to the potential for catastrophic pest outbreaks. In addition, it is a limiting factor in finding other valuable genetic traits. The strawberry germplasm collections are a major resource for the molecular geneticist mentioned above.

REDUCTION OF PESTIDE USE - to conduct research that will reduce the use of pesticides through the development of new disease and insect resistant varieties, screening for and elimination of virus infections.

A. **New Virology Position: Strawberries are prone to virus diseases some of which significantly reduce yields but show few other visible symptoms of infection. Most growers use certified nursery plants that are free of known viruses and they keep them from one to many years in the field. Because viruses may be transmitted to other plants by aphids or other insects, growers often need to apply insecticides to prevent the spread of infection.**

Indexing techniques to detect viruses in plant tissue were developed in the 1950's. New techniques involving tissue culture and nucleic acid "probes" are already available to study and detect viruses in other crop plants.

Dr. Richard Converse, the principle strawberry virologist in the U.S., retired in Sept. of 1990 and was not replaced; nor was Dr. John McGrew in Beltsville, MD who retired earlier. The importance of strawberry virus research cannot go unrecognized. For the USDA or any breeder to release a new variety, it must be confirmed that no viruses are present in the propagation material.

B. Anthracnose Research: "Anthracnose" is a complex of fungus diseases that damage strawberries in the Eastern United States. Many southern nurseries have gone out of business due to this devastating disease. The disease is spreading northward and threatens plant nurseries in the Northern U.S. also. Breeding programs for anthracnose already exist, but they are not adequate since the anthracnose pathogen has many types and these invade the strawberry plant at different sites.

Suitable genetic resistance for anthracnose is therefore much more difficult to find and additional pathological studies are needed to prevent the spread of the fungus into cooler northern areas.

C. Insect Resistance: For sustainable agriculture, it is essential that plants be resistant to insects. In the past, insecticides were readily available for the control of insects that damage strawberries. Therefore, our knowledge of genetic resources and their incorporation into resistant varieties is currently very limited. In addition, fewer pesticides are available and there is greater interest in reducing production costs and the environmental impact of any chemicals still available to us. Certain insects can be monitored and sprays may be eliminated, but insecticides still play an important role in strawberry production. Every effort should be made to develop insect resistant varieties that will strengthen IPM programs nationwide.

CONTINUING PROGRAM SUPPORT - to maintain current programs and confront urgent research needs of the U.S. strawberry industry. NASGA also recommends a modest increase in continuing program support. (USDA/ARS)

A. Cooperative Breeding Programs: A strong strawberry industry today is predicated on timely research support and breeding programs in the past. NASGA has encouraged and supported in part the award winning USDA/ARS research at Beltsville and other cooperating facilities. We must return to at least the 1988 funding levels. Scientists without technical help and equipment are hindered in achieving the high level of performance desired. The need for new varieties and cooperative evaluation of native and exotic germplasms are intrinsic components of the Small Fruit Crops Improvement Program of the USDA/ARS in Beltsville.

B. Plant Disease Research: The plant breeder cannot work in a vacuum. The plant pathologist tries to understand all aspects of disease development. This knowledge is essential in selecting genes that provide various levels of resistance in different environments. Disease prediction programs and Integrated Pest Management also require vast amounts of fundamental knowledge. More than 100 different fungi and over 15 virus and virus-like pathogens infect strawberries. The plant pathologist must be able to distinguish these from the injury caused by more than 200 strawberry insects. The overall result can be the development of successful non-chemical pest control for the benefit of growers and consumers alike.

SECTION B

Strawberries are grown commercially in 36 states; the top producers being: California, Oregon, Florida, Washington, New York, Michigan, North Carolina, Pennsylvania and Ohio...a dramatic shift in location since the 1940's.

The far west grows 76% of U.S. production on 43% of the acres; the mid-south grows 13% on 24% of the acres; and, the central and N.E. states combined produce 11% on 33% of the acres...85% is sold fresh, 15% is processed.

There are roughly 5000 commercial growers with 44,950 acres that produced 533 tons of strawberries in 1988, an increase in production of 98% since 1974. Gross returns exceeded $ 537 million in 1988, up 223% since 1974.

Eight out of ten households purchase fresh strawberries during the season & one out of seven households buys strawberries from local farms. Per capita consumption increased steadily and is now more than 3.0 pounds per person. Consumers who freeze and make jams and jelly consume even more.

Over 70% of strawberries grown in the central and N.E. states are harvested by pick-your-own customers on farms. Between 7.6 and 10.0 million consumers patronize farms to buy home-grown strawberries.

Strawberry farms are among the most intensive and innovative in the U.S.. High levels of management and investment are required. In the central and N.E. states, an investment of $ 3,500 per acre is required to grow the crop until its first harvest. The per acre start-up values for Florida and California are at least $ 6,500. The extra cost is due to plastic mulch, soil fumigation, plant stocks and labor required for an annual cropping system. The average strawberry farm in Illinois is 4.8 acres per farm.

Strawberries are the number eight export crop of all U.S. produce, exceeded only by grapes and apples of the non-citrus fruits.

Although as many as 50 varieties are grown in the U.S., an estimated 90% of the commercial acreage is limited to nine or ten varieties. Most varieties are replaced by improved ones in less than 15 years.

Strawberries are the first aromatic taste of spring. One-half cup serving of strawberries contains the recommended daily allowance of Vitamin C and more fiber than a slice of whole wheat bread. In addition, strawberries contain substantial amounts of Vitamin A and traces of thiamin, riboflavin, niacin, Vitamin E, calcium and phosphorus.

Strawberries add flavor, food value and pleasure to meals and snacks. They ripen in short local seasons of about 30 days but are available during nearly every month of the year in supermarkets from California and Florida.

NORTH DAKOTA, UNIVERSITY OF

STATEMENT OF THE ENERGY AND ENVIRONMENTAL RESEARCH CENTER

TESTIMONY FOR THE CONTINUATION OF A RESEARCH PROGRAM ON IMPACTS OF AGRICULTURAL CHEMICALS ON GROUNDWATER

Problem

The agricultural industry continues to rely heavily on the use of synthetic herbicides, pesticides, fungicides, rodenticides, and fertilizers to enhance production. These chemicals are introduced into the ecosystem in the form of aerial sprays, seed coatings, and subsurface injection into the seed bed. The northern Great Plains is a primary agricultural production region of the United States and, consequently, is exposed to a wide variety of agricultural chemicals, some of which may readily migrate downward into the shallow groundwater. These chemicals, if present in the rural drinking water supply, may present a public health problem of significant magnitude. The effects of agricultural chemicals on the shallow, saturated, hydrogeochemical environment of the northern Great Plains region is only beginning to be understood. The presence of these chemicals in relatively shallow groundwater may be especially significant because much of the farming community in this region relies on shallow groundwater for domestic use. In addition, bioaccumulation of these chemicals may occur in dairy, grain, and meat products and be passed on to the consumer. The public, as well as regulatory agencies, has become increasingly aware of the issue as groundwater usage has continued to increase past 100 billion gallons per day.

There continues to be a need among regulatory agencies and the general public to know what the facts are concerning the occurrence, transport, and fate of agricultural chemicals in the groundwater supply because of the immediate and long-term public health implications and evolving regulatory requirements. A meaningful solution to this potential problem cannot be devised until the magnitude is understood and the problem has been fully characterized. Collection of baseline information is the first step necessary in scientifically evaluating and mitigating the issue. The occurrence, transport, and fate of these chemicals in the groundwater throughout the northern Great Plains must be determined in more detail than is presently available before any meaningful management decisions can be made regarding the use of these chemicals.

Ongoing Research Program Results

The work accomplished during the first year of this groundwater research program included geological characterization and instrumentation of three field sites located in three different, important agricultural regions of North Dakota. The work focused on drilling and installation of groundwater monitor wells and sampling of soils and groundwater at each site to obtain information on subsurface geologic materials present, direction and rate of groundwater movement, and composition of waters in the unsaturated and saturated subsurface zones.

Results obtained from chemical analyses of samples of groundwater at each site in the first year indicate the presence of pesticides in much of the shallow groundwater at one study site of 320-acres size, and the presence of nitrogen fertilizer in much of the shallow groundwater from a second study site of 160-acres size. Work scheduled for the 1991 field season will include additional sampling and analyses of groundwater samples from both, the shallow and deeper wells already installed, as well as installing additional instrumentation to sample soil moisture for chemical composition and completing the chemical analyses of soils overlying affected groundwater to provide the confirmation and supplemental data needed to better define the spatial distribution and concentration of agricultural chemicals previously detected and to study the role of fractures in movement of water and chemicals through the subsurface materials.

Additional work under the established program will include drilling and instrumentation of additional planned field sites in central and western North Dakota, South Dakota, Wyoming, and Montana to expand the geographic, geologic, hydrogeologic, and agricultural coverage.

Objective

The major objective in continuing this research program is to more completely understand the extent to which agricultural chemicals may be contaminating shallow groundwater in the northern Great Plains. This will provide a basis upon which sound hydrogeological and agricultural management decisions can be made. It will also provide a sound basis for further research.

Statement of Results Expected

1. Identification of chemical usage patterns, including data on well contamination incidents at mixing sites.
2. Identification of the specific chemicals applied.
3. Determination of the occurrence and concentration of selected chemicals in selected shallow aquifers in North Dakota.
4. Correlation, if possible, between the chemical occurrence and hydrogeological environment.

Nature and Scope of the Research

The nature of this continued groundwater research program is one of obtaining and evaluating basic information about a problem which has high visibility, but about which there is very little factual information. This program will identify the agricultural chemicals being applied in the region and will identify their occurrence and concentration in selected shallow groundwater environments. It will also identify the hydrostratigraphic environment, because definition of the physical three-dimensional matrix of earth materials through which groundwater flows will enable us to develop an overview of the severity of the potential problem. Such information does not exist but is essential as the basis for the design of continued research on this topic.

The scope includes chemical identification, field sampling and analysis, and correlation of the results with the hydrogeological environment at representative sites. Because of agricultural diversity and the wide range of geologic environments within the region, it is essential that a wide variety of sites be investigated.

Methods, Procedures, and Facilities

Additional agricultural chemicals and settings to be investigated will be determined during the initial phase of the research and, consequently, cannot be listed here. Intelligent site selection must be based on what we know about the sites, the locations of which will be determined by the initial selection of chemicals. Sampling locations must be carefully chosen to avoid contamination caused by spills and backsiphoning at well sites. Chemical usage, geology, climate, and topography will be considered the key variables in a matrix to select study sites. Isotope studies will provide a key tool in evaluating moisture movement in the various settings chosen for study. Examples of distinct hydrogeological settings in North Dakota, which are representative of most of the northern Great Plains, include the semiarid, nonglaciated areas southwest of the Missouri River, the rolling landscape of the Missouri Coteau, and the Red River Valley. Sampling will be done by MMRRI personnel and analytical work will be done in accordance with standard, accepted methods.

Related Research

There is great interest in groundwater quality and quantity throughout the U.S. Most of the agriculturally related groundwater research has focused on the very important root zone, or upper four feet of the landscape. This research program embraces the complete groundwater regime, which includes the unsaturated zone and the saturated zone, which is the source of groundwater for use. This program will serve as a framework through which other research projects can be put in perspective. A systematic integration of relevant research by agencies and individuals will result.

The Energy and Environmental Research Center (EERC) has designed and is executing the groundwater research program for the gas industry on behalf of the Gas Research Institute. There are direct program parallels in that previous research was without an overall program focus related to specific problems. The EERC is the leader for the Western Region National Mine Land Reclamation Center. The key focus of that research is understanding the geologic settings and water moving and evolving through the settings.

Past and ongoing research at the EERC is providing a fundamental understanding of groundwater flow, occurrence, chemical evolution, and impact of nonagricultural contaminants in this region. Ongoing limited-scale research at North Dakota State University is addressing transportation and transformation of selected chemicals in the unsaturated zone at selected sites in south central North Dakota. The research proposed here will draw on the EERC's regionally unique groundwater expertise, and complement and expand on the NDSU research by focusing on the occurrence, transportation, and fate of these chemicals in the unsaturated and saturated zones at selected sites throughout North Dakota. The results will provide generically applicable information relevant to the northern Great Plains and, thus, design for management of agricultural chemicals and identification of future research needs.

Investigator's Qualifications

Personnel within the EERC have regionally unique experience with hydrogeological and hydrogeochemical characterization and evaluation in the northern Great Plains. This background has been essential in determining representative sampling sites.

Training Opportunities

Specific aspects of the ongoing research program are being utilized as a Ph.D. dissertation topic in groundwater geology, as well as student employment opportunities. It is anticipated that the continuation of this research will result in additional graduate degrees in groundwater geology and related subjects.

IMPACTS OF AGRICULTURAL CHEMICALS ON GROUNDWATER

10-Apr-91

LABOR	LABOR CATEGORY	HOURLY RATE	HOURS	$ COST
PROJECT MANAGER	PRINCIPAL SCIENTIST	$33.00	690	$22,770
SENIOR SCIENTIST	PRINCIPAL SCIENTIST	$37.00	120	$4,440
TASK LEADERS	RES. SCIENTIST III	$26.00	2730	$70,980
SCIENTISTS	RES. SCIENTIST III	$20.00	2730	$54,600
ANALYTICAL	CHEMIST III	$14.00	1365	$19,110
-------------	WORD PROC/GRAPHICS	$8.50	1125	$9,563
GRADUATE STUDENTS				
-------------	GRAD. RESEARCH ASST.	$8.08	2080	$16,806
A. SALARIES AND WAGES			10840	$198,269
FRINGE BENS. – % OF DIRECT LABOR*		45%		$81,658
FRINGE BENS. – STUDENTS ONLY		21%		$3,529
B. TOTAL FRINGE BENEFITS				$85,187

C. TOTAL LABOR BASED CHARGES		$283,456
D. EQUIPMENT COST >$500		$4,000
E. GENERAL SUPPLIES		$4,000
F. TRAVEL		$4,000
OTHER		
COMMUNICATIONS – PHONES AND POSTAGE		$400
OFFICE SUPPLIES		$430
ANALYSIS FEES – ANALYSIS OF FIELD SAMPLES		$42,000
SUBCONTRACTS–DRILLING AND INTRUMENTATION		$20,000
I. ALL OTHER DIRECT COSTS		$62,830
J. TOTAL DIRECT COSTS		$358,286
K. INDIRECT COST – % OF MTDC*	40.0%	$141,714
L. TOTAL ESTIMATED PROJECT COST		$500,000

* SEE BUDGET NOTES ON THE FOLLOWING PAGE

FEDERAL BUDGET NOTES

BUDGET NOTES - ENERGY AND ENVIRONMENTAL RESEARCH CENTER

The proposed work would be done on a time and materials basis. Financial reporting will be at the total project level.

FRINGE BENEFITS

Fringe Benefits are estimated based on historical data. The fringe benefits which will actually be charged consist of two components. The first component covers average vacation, holiday, and sick leave for the EERC. This component will be charged as a percentage of direct labor. The second component covers actual expenses for items such as health and life insurance, social security, UND retirement, unemployment insurance, and workman's compensation.

INDIRECT COSTS

The indirect cost rate included in this proposal is approved by the Department of Health and Human Services.

STATEMENT OF WILLIAM F. SHERIDAN, PROFESSOR

SUPPORT FOR THE MAIZE GENETICS RESEARCH CENTER

Name of Institution: University of North Dakota
Grand Forks, North Dakota

Project Director: William F. Sheridan, Professor

Title of Proposed Research Project: Support for the Maize Genetics Research Center

Desire Starting Date: 1 October 1991

Total Support Requested: $600,000

Synoptic Paragraph: Funds are requested to support basic research in maize genetics at the University of North Dakota. The research will analyze the genetic control of maize development under the especially favorable research environment at UND. This research relates intimately to agriculture and increased maize crop production because it will provide fundamental information regarding the growth and development of the maize kernel and plant. This information is valuable for maize breeders and future genetic engineering of maize. Funding of this request will increase the productivity of our ongoing maize research and will enable the recruitment of two new faculty members thereby enhancing our capacity to perform basic research in the development genetics of maize and to conduct graduate and postdoctoral training in this area.

Request: Funds are requested to support and enlarge the Maize Genetics Research Center and to support basic research in maize development genetics at the University of North Dakota.

We have a nationally recognized research program in maize genetics at the University of North Dakota. This program with Professor William F. Sheridan as Principal Investigator has been steadily funded for the last 15 years by the National Science Foundation, the USDA Competitive Grants Program, and the Rockefeller Program for a total of $1,162,000.

Unique Features of the Research Environment: Here at the University of North Dakota we enjoy certain unique features of the research environment that are especially favorable for analyzing the genetic mechanisms controlling maize kernel development and flowering. For many years we have studied the role of genes in kernel development by analyzing gene mutations affecting both endosperm and embryo development. In recent years we have analyzed several of these mutations and recently have identified a large collection of embryo specific mutations that comprise a very promising and unique opportunity to analyze the genetic control of embryogenesis.

A second unique feature here is our geographic location. We have extraordinarily long days in the summer of about 17 hours duration with very short days of about 9 hours duration in the winter. It is well known that flowering in many varieties of maize are sensitive to day length. By growing corn plants here in the field in the summer and greenhouse in the winter, as well as in our experimental winter nursery on Molokai, Hawaii, we are in an especially favorable position to examine the genetic mechanisms controlling meristem determination and sex expression in flowering.

A third unique feature of our research environment is that we have the only portable x-ray system for field experiments of any maize investigators in the country. This portable unit allows us to administer radiation doses to developing tassels and ears on field grown plants by taking the X-ray unit into the experimental field. This unique set of equipment allows us to pursue clonal analysis studies on kernel and embryo development as well as the meristem and flowering research utilizing X-ray induced chromosome breakage with genetically marked mutant stocks. Whereas other investigators have to carry pot grown corn plants into a building containing a stationary X-ray unit we have the potential of a ten-fold increase in the magnitude of our clonal analysis by using the mobile X-ray unit.

Relevance to Agriculture and Crop Production: Our current research and the future research of the Center relates intimately to agriculture and increased maize crop production because it will provide fundamental information regarding the growth and development of the maize kernel and plant. This information is valuable for the success of maize breeders seeking to improve this, the most valuable crop plant in America, and also provides the foundation for future efforts seeking the alteration of the maize genome by genetic manipulation through molecular techniques.

Benefits from Funding: Funding of this request will have two major benefits. It will enhance our capability to pursue our ongoing research on maize development including the kernel and flowering studies. We will continue our studies on the three genes influencing flowering, teosinte branched (tb), tassels replace upper-ears (tru), and indeterminate (id). We will also extend our studies on the mutations controlling kernel development, especially the 51 embryo-specific (emb) mutations we have collected. In addition to the genetic, clonal analysis, and morphological characterizations we will pursue the molecular "tagging" of these genes using transposable elements.

The second major benefit of funding will be the recruitment of two new faculty members to join the Center. Addition of these two individuals, both of whom will develop independent research programs within the Center, will substantially strengthen the Center and contribute to the forming of a critical mass in maize developmental genetics here at UND. This recruitment will be conducted by the Biology department inasmuch as both of these individuals will be tenure-track faculty in the department a well as full members of the Center.

The addition of two additional faculty members to the Center is important because it will significantly enhance its capacity to achieve its mission of performing basic research in the developmental genetics of maize and to conduct graduate and postdoctoral training in this area. Whereas the Director has established a nationally recognized research program the two new faculty members of the Center will each develop their own independent research programs analyzing genes controlling aspects of maize morphogenesis selected by them. Funding of this request will provide for salary and fringe benefits for the two new faculty as well as adequate start up monies to equip their laboratories. It is anticipated that the University will provide funds from other sources for renovation of space for the members of the Center. Funding of this request will also provide for securing support staff needed to make the Center functional and aid in its productivity, as well as to provide support for graduate students working with the faculty in the Center. In addition, funding of this request will make possible the conducting of field experiments in the summer and winter nurseries as well as performing laboratory research.

Budget: Below is presented the budget for the requested funds. This is a realistic budget reflecting the real needs for successfully recruiting the two new faculty, establishing them in a supportive environment, and enabling the forward progress of the research efforts of the Center.

Budget

1. Salary and Fringe Benefits:	
a) Director (7.5 months)	66,000.
b) Two new faculty (12 months)	135,000.
c) Technical and secretarial staff	45,000.
d) Graduate student stipends	29,000.
2. Start up funds for equipment and supplies for the two new faculty	240,000.
3. Winter experimental nursery	30,000.
4. Laboratory and field supplies	40,000.
5. Research related travel	15,000.
TOTAL	$600,000.

STATEMENT OF DR. THOMAS J. CLIFFORD, PRESIDENT

The Institute for Agricultural Health Sciences and Rural Medicine

SYNOPSIS: The University of North Dakota is requesting $5,869,760 to complete construction of the Institute for Agricultural Health Sciences and Rural Medicine. The mission of the Institute is to address health prevention, research, human nutrition and safety issues of particular concern to farmers and rural residents.

STATEMENT SUBMITTED BY

PRESIDENT THOMAS J. CLIFFORD
PRESIDENT OF THE UNIVERSITY OF NORTH DAKOTA

Mr. Chairman, on behalf of the University of North Dakota, I am pleased to present for your consideration a request for $5,869,760 to complete the federal share of funding for the establishment of the Institute for Agricultural Health Sciences and Rural Medicine. Let me also take this opportunity to thank you and your colleagues on the Subcommittee for providing $2,892,000 in the Fiscal Year 1991 Agriculture and Related Agencies Appropriations bill for this project.

Since the Fiscal Year 1991 funds were appropriated, officials of the University have been working with representatives of the Department of Agriculture toward the establishment of the Institute. A grant application was completed and returned to the Agency on February 7, 1991, and we are now awaiting a site visit by Cooperative State Research Service review team on April

22-24, 1991. Department officials have indicated that the required non-federal match that has been proposed by the University is acceptable.

The University of North Dakota views this project as an important opportunity to utilize the interdisciplinary expertise available through the School of Medicine, the Human Nutrition Center, the Energy and Environmental Research Center, the USDA Extension Service and other University resources to address critical health and safety issues faced by farmers and other rural Americans. These populations experience an abnormally high incidence of chronic lung disease, certain cancers, arthritis, dermatitis, and noise-induced hearing loss. The Institute will attempt to identify the sources of these diseases and develop protocols for their prevention.

In addition to the funds provided for this project by your Subcommittee last year, the Congress also recognized the need for this type of research when it included statutory language in the Food, Agriculture, Conservation Act of 1990 which authorizes the USDA to conduct research which will "enhance human health. . .by assisting farmers and other rural residents in the detection and prevention of health and safety concerns." (Public Law 101-624, Section 1402(6)(2). In the same bill, Congress also established authorization (Sections 2390 and 2391) for Rural Health and Education and Rural Health Infrastructure Improvement.

The total cost of the project is $17,350,000, with the University matching the federal contribution on a 50-50 basis. The request of $5,869,760 for Fiscal Year 1992 will complete the federal share of the project's cost. A copy of the University's application to USDA for the Fiscal Year 1991 funds, a copy of which has been provided to the Subcommittee, outlines in detail the goals and objectives of the Institute and associated costs.

Thank you again, Mr. Chairman, for your support of last year's request, and for your consideration of the request for $5,869,760 to complete the project.

STATEMENT OF THE ENERGY AND ENVIRONMENTAL RESEARCH CENTER

TESTIMONY FOR THE CONTINUATION OF THE NATIONAL ALTERNATIVE FUELS LABORATORY

Problem

Two events in 1990 -- Congressional passage of the 1990 Amendments to the Clean Air Act and the Persian Gulf Crisis -- will provide the impetus for new, cleaner fuels derived from domestic energy sources. The Clean Air Act revisions mandate changes in fuel composition and establish new directions in automotive technology. The Persian Gulf Crisis illustrates the point that we pay a price far beyond what appears at the pump for our dependence on foreign oil.

Consequently, the 1990s will see an unprecedented transition in gasoline and automotive fuel composition. By the year 2000, we will likely have an assortment of transportation fuels from which to select, including ethanol, methanol, compressed natural gas, and "reformulated" gasolines with high-oxygen additives such as ETBE and MTBE.

Over the course of the '90s, every car owner will be impacted by the change in fuel composition. Most immediately, residents of 44 cities, effecting 17 billion gallons of gasoline annually, will be impacted by the Clean Air Act requirement to use gasolines with minimum oxygen contents of 2.7%.

Other requirements of the Act define gasoline vapor pressures at 9.0 psi (10.0 psi for ethanol blends) in areas where air quality standards are not being attained. Certain toxic compounds such as benzene, butadiene, formaldehyde, and acetaldehyde and all volatile organic compounds must be reduced by 15% in 1995 and 25% in 2000. Specifically, benzene content shall not exceed 1.0% in ozone nonattainment areas and nitrogen oxide emissions shall not be increased as a result of blending new or reformulated gasolines to meet the above requirements.

These and other mandates of the Clean Air Act will drive the market for new gasoline blends and gasolines mixed with oxygenated compounds. The crisis in the Persian Gulf will create governmental and public pressure to meet these requirements with domestic, especially renewable, sources of energy.

Ethanol produced from agricultural commodities (90% from corn) is a leading candidate for meeting the near-term, gasoline oxygen mandates. Ethanol production for fuel purposes is expected to increase, possibly threefold, from 900 million gallons in 1990 to as high as 3 billion gallons in the second half of the decade.

ETBE (ethyl tertiary butyl ether), produced from ethanol and isobutylene, and particularly MTBE (methyl tertiary butyl ether), derived from methanol and isobutylene, are gaining acceptance as oxygenated octane enhancers in gasolines. Current production of MTBE is approximately 100,000 bbls/day.

Methanol, while limited in use because of its more corrosive behavior on engine parts and its high toxicity to humans, will receive greater development pressure with the passage of the Clean Air Act because of its low cost of production. Blends of 85% methanol and 15% gasoline are being tested for use in California, using automobile engines designed to handle these fuels and in flexible-fuel engines which are capable of using several different fuels by computer control of engine air-fuel carburation.

The presence of the National Alternative Fuels Laboratory will continue to be important to provide detailed component information on gasoline/fuel compositions which will enable consumers, the fuel and automotive industries, other DOE/DOA research programs, and government regulators to assess the impact which these alternate fuels have on the national transportation fleet.

Ongoing Research Results

The previous study showed few significant differences in gasoline composition between that sold under the major brand names and that sold by local, independent retailers. The study did show that the ethanol blends sampled in Texas used base gasolines which had lower BTX contents than those used in North Dakota. In North Dakota, BTX contents ranged from 2-20% with no apparent consideration given to the octane-enhancing benefits of ethanol in replacing these toxic aromatics.

Seasonal variations in gasoline blending practices did not show up in the survey in any consistent, predictable form. As an example, select Texas unleaded gasoline samples displayed higher BTX contents in the summer while select Texas ethanol blends displayed lower BTX content during the summer months.

The study also included a survey of retail gasoline service stations in North Dakota relative to their sale and handling of ethanol-blended gasolines. Of 450 gasoline stations surveyed, only 24% of the stations presently carried ethanol fuels on a regular basis. Of those that do not now carry the blend, 21% had offered it at some time in the past. This situation exists despite responses that indicate 51% of the station managers would recommend the use of ethanol blends to their customers.

The main reason given for not carrying ethanol-blended gasolines was a perceived (by distributors) customers' reluctance to use it and the need to dedicate a separate storage tank for the ethanol blend. The majority of the distributors favored or were neutral on the use of ethanol blends.

Also part of the study was a one-year survey of Grand Forks automotive service shops. Shop managers were asked to report incidents of gasoline-related engine problems. Even though contact was maintained, only one fuel-related incident was reported, and that was caused by improper storage and handling of the gasoline.

Objective

The National Alternative Fuels Laboratory will become an objective, public resource to accomplish the following:

1. Produce unbiased, scientific information and appropriate dissemination methods from which the public can develop confidence in the quality, composition, and performance of ethanol-blended and other alternative automotive fuels.
2. Provide comparative data between U.S. DOE, U.S. DOA, and industrial research programs.
3. Determine the impact of new gasoline compositions on automotive emissions and industry standards.
4. Monitor changes in gasoline composition and the chemical components of new alternate automotive fuels.
5. Provide a basis on which to assess the quality of alternate fuels with respect to consumer acceptance.

The overall objective of the Laboratory is to ease the transition of the driving public to new gasoline blends which will develop as a result of the 1990 Amendments to the Clean Air Act. The short-term objective will be to enhance cooperative work with other research groups, to maintain the collection of pertinent literature, and to improve data reduction and correlation methods. The emphasis of the analytical work and data reduction is to provide details on how the individual components (over 195) present in gasoline in conjunction with biomass-derived fuels that utilize agricultural and forestry feedstocks affect engine performance and the environment.

Results Expected and Nature of the Scope of the Research

Analytical improvements would be made to quantify olefins, a major contributor to ozone reduction (proton nuclear magnetic resonance provides details on the type and quantity of olefins present in gasoline), and to relate the type and quantity to emissions data obtained by other laboratories.

Additional effort will be placed on being complementary to other government and private research efforts that are studying the use of alternate fuels. In particular, preliminary contacts have been made with individuals involved in the General Motors program, Alternate Motor Fuels Act program managed by the Solar Energy Research Institute (SERI), Archer Daniels Midland (ADM) program, and the National Institute for Petroleum Energy Research (NIPER) concerning the exchange of information. We are interested in obtaining samples of fuels used in their tests and their emissions and performance results, while they appear interested in obtaining our detailed component data.

Our own sample collection efforts would continue in order to obtain information concerning the storage and time effects of ethanol fuels on the farm. One example of phase separation caused by extreme changes in outside temperatures has been identified.

Methods, Procedures, and Facilities

The University of North Dakota Energy and Environmental Research Center (UNDEERC) has personnel and equipment to complete the proposed work. The fingerprint analyses are performed using an HP 7673A auto injector coupled to an HP 5890 gas chromatograph (GC) and a flame ionization detector (FID). Data is initially collected using an HP 3396A integrator and then transferred to PC compatible computers for data reduction and compilation. Individual compounds are identified using GCs interfaced to mass spectrometers (MS) and Fourier transform infrared (FTIR) detectors. Personnel skilled in MS and FTIR techniques identify the compounds with the aid of computerized libraries. Hydrogen functionality analyses are performed using a Varian XL200 nuclear magnetic resonance spectrometer.

Laboratories are equipped with hoods to provide ventilation of flammable or controlled materials (gasoline) during sample preparation. Gasoline samples are stored in refrigerators rated for flammables. Laboratories are regularly inspected by EERC and UND safety personnel to ensure that safe practices are in effect.

Investigator's Qualifications

Personnel within the Fuels and Process Chemistry Research Institute have unique personnel and analytical equipment. Personnel have been and are involved in research programs supported by the DOE, EPA, USDA, and petroleum companies. The research studies include jet fuel production from Dakota Gasification Plant coal-derived by-products and analysis, determination of the source of city pollution (automotive fuels or home wood use), and ethanol fuels analysis. This background is essential to the valid interpretation of data, especially from other research laboratories.

Training Opportunities

The UNDEERC encourages the use of students in all phases of research. Students will be used in this program, and aspects of the analytical methods development are likely topics for senior research projects and advanced degrees.

NATIONAL ALTERNATE FUELS LABORATORY

11-Apr-91

LABOR	LABOR CATEGORY	HOURLY RATE	TOTAL HOURS	$ COST
-----------	PRINCIPAL SCIENTIST	$28.00	1100	$30,800
-----------	RESEARCH SCIENTIST	$17.00	1800	$30,600
-----------	ANALYTICAL SUPPORT	$10.00	1800	$18,000
-----------	CLERICAL SUPPORT	$9.50	1600	$15,200
FACULTY AND GRADUATE STUDENTS				
-----------	PROF.-CHEMICAL ENG.	$30.00	315	$9,450
			6615	$104,050
FRINGE BENS. - % OF DIRECT LABOR*		45%		$46,823
TOTAL LABOR BASED CHARGES				$150,873
OTHER DIRECT COSTS				
TRAVEL				$5,000
GENERAL SUPPLIES				$5,127
OTHER				
COMMUNICATIONS - PHONES AND POSTAGE				$3,000
OFFICE SUPPLIES				$1,000
ANALYSIS FEES - ORGANIC LAB				$60,000
TOTAL OTHER				$64,000

EQUIPMENT COST >$500	$25,000

TOTAL OTHER DIRECT COST	$99,127

TOTAL DIRECT COST = LABOR BASED + OTHER DIRECT	$250,000
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NOTE: INDIRECT COST NOT ALLOWED BY PROGRAM. NORMAL INDIRECT RATE OF 40% HAS BEEN WAIVED.

FEDERAL BUDGET NOTES

BUDGET NOTES - ENERGY AND ENVIRONMENTAL RESEARCH CENTER

The proposed work would be done on a time and materials basis. Financial reporting will be at the total project level.

FRINGE BENEFITS

Fringe Benefits are estimated based on historical data. The fringe benefits which will actually be charged consist of two components. The first component covers average vacation, holiday, and sick leave for the EERC. This component will be charged as a percentage of direct labor. The second component covers actual expenses for items such as health and life insurance, social security, UND retirement, unemployment insurance, and workman's compensation.

INDIRECT COSTS

The indirect cost rate included in this proposal is approved by the Department of Health and Human Services.

NORTHWESTERN UNIVERSITY

STATEMENT OF ARNOLD R. WEBER, PRESIDENT

Mr. Chairman, thank you for inviting me to submit this statement, describing our proposal that is now before your Subcommittee. The assistance that the Senate and House Subcommittees, under your and Congressman Jamie Whitten's direction, have given to Northwestern has been of tremendous importance in preparing this proposal and in making it the subject of a feasibility study by the United States Department of Agriculture (USDA) Cooperative State Research Service. I wish to thank you and the Subcommittee members for this assistance. Your efforts in supporting university research are a primary reason that the United States continues to lead the world in biological and agricultural science and technology.

Northwestern University has made a firm commitment to play a leadership role in life science research, with the goal of making a major contribution to the United States biotechnology enterprise, including the agriculture-related industries. During the past decade, life science research, and especially biotechnology, has experienced dramatic growth at Northwestern. Our success in assembling a group of outstanding faculty and student life scientists has resulted in a pressing need for expanded and modernized research facilities. As part of our commitment to continue this development in the life sciences, Northwestern University has therefore recently undertaken a construction program on both the Evanston and Chicago campuses. On the Evanston campus, this program is designed to create both new and renovated space for biotechnology. New space of 42,000 net sq. ft. for research laboratories, research support facilities, conference and writing rooms, and faculty offices will be generated in an $18 million life science research building to be occupied by biotechnology scientists in the Departments of Biochemistry, Molecular Biology and Cell Biology and of Neurobiology and Physiology. Renovated space will be made available to the increasing number of biotechnology scientists in the three Departments of Chemistry, Chemical Engineering, and Biomedical Engineering. This renovation of 23,200 net sq.ft. of laboratories and related research space in the Technological Institute Building will cost $5.8 million. We are proposing that the federal government enter into a partnership with us in carrying out this construction and renovation program, which will total $24.4 million, including $0.6 million for a utilities tunnel.

The quality of our life sciences program is evidenced by the accomplishments of our biotechnology faculty, who have received numerous national and international awards. The biotechnology faculty as a whole have also been recognized by several major institutional awards, including four National Research Service Award Training Programs from the National Institutes of Health in the Cellular and Molecular Basis of Disease, Molecular Biophysics, Sensory Physiology, and Reproductive Biology, and (in collaboration with scientists at the University of Virginia and the Rockefeller University) a National Science Foundation Science and Technology Center for the study of biological rhythms. External support for the research programs of these faculty has more than doubled during the past decade, as have the number of applicants and matriculants for predoctoral and postdoctoral training in biotechnology at Northwestern. One other recent example of the strength of the biotechnology faculty as a group is the $1.5 million acquisition of a 600 MHz nuclear magnetic resonance spectrometer, with joint funding from the W. M. Keck Foundation, the National Institutes of Health, the National Science Foundation, the State of Illinois Technology Challenge Fund, and Northwestern.

Northwestern has a history and an ongoing association with other Midwestern universities and with the USDA in biotechnology research relevant to agriculture. Northwestern was a founding member of the Midwest Plant Biotechnology Consortium, which includes state universities such as the University of Illinois, University of Iowa, University of Wisconsin, Purdue University, Indiana University, and the Ohio State University, private institutions such as the University of Chicago, and the Argonne National Laboratory. An annual Midwest region symposium on animal reproduction is hosted by Northwestern, with participants from the University of Illinois, University of Chicago, Indiana University, and other institutions. Furthermore, at the individual investigator level, several faculty have joint research programs with USDA scientists. These programs include the study of nutrient uptake by corn, the fixation of atmospheric nitrogen, and the growth of transgenic farm animals.

Biotechnology research at Northwestern University addresses the new challenges facing the agriculture-related industries in the United States. These challenges include maintaining the competitiveness of the United States in the international agricultural marketplace, fostering the health and well-being of the population through improvements in food and diet, and coordinating the sensible utilization and preservation of our natural resources and environment. Federal support of the Biotechnology Center facilities at Northwestern will promote the development of new scientific tools needed to meet these challenges. An understanding of basic biological mechanisms is essential for advances in agriculture, and Northwestern scientists excel in such areas of investigation as animal development, genetics, and reproduction; drugs, vaccines, and disease and pest control; food processing and storage; plant productivity; and environmental detoxification.

Significant advances in the quality of the nation's livestock have been obtained through careful breeding programs; biotechnology offers a more rapid and directed means of achieving further improvements. Northwestern researchers are defining the genetic and hormonal processes regulating animal growth, development, and reproduction. Prevention and control of disease, a topic investigated by Northwestern University immunologists and virologists, is an equally important component of programs to improve animal productivity in this country. The recent outbreak of bovine spongiform encephalopathy in Great Britain is a sobering reminder of these problems. The threat to our nation's agricultural industry from infectious agents that cause disease in the farm animal population is therefore a constant challenge, and presents a continual need for new vaccines, antibiotics, and drugs. Biotechnology provides the tools to identify and produce large quantities of proteins present in these infectious agents that can function as safe and effective vaccines.

Despite the ability of some bacteria to cause disease, other types of bacteria are essential for food preparation, especially for dairy products. Northwestern scientists are actively studying bacteria that are involved in food preservation and cheese production. Furthermore, enzymes derived from bacteria are of vast economic importance for industrial food preparation. Investigations here are aimed at identifying and characterizing heat stable enzymes present in bacteria that grow at very high temperatures; these enzymes offer the possibility of simplified and less costly food processing. Northwestern scientists are engineering animal and bacterial cells to express large quantities of these commercially valuable proteins, while other University biotechnologists are developing methodologies to grow these cells in large-scale cultures for the production of these proteins.

Other bacteria of agricultural significance are those that associate with plant roots and fix atmospheric nitrogen into a usable form. The availability of "fixed" nitrogen is generally a limiting variable in plant growth, and the need for adding nitrogen fertilizers to the soil represents a major expense in plant agriculture. Mechanistic studies on nitrogen fixing enzymes are being conducted at Northwestern and will provide important insights into improving the process of nitrogen fixation. Several other research projects are directed at improving plant productivity by studying ways in which plants can more effectively extract nutrients from the soil and the means by which plants harvest light energy. These investigations will not only improve crop yields and decrease fertilizer use, but may also provide insights into the design of solar cells. Such a contribution by agricultural research to meeting America's energy needs could have a dramatic impact on lowering the costs of all industrial activities, including those associated with agriculture.

As the nation's rivers and lakes choke on industrial effluent, and the country's soil collects toxic waste that seeps from corroding storage containers, cleansing the environment has become a pressing national concern. Northwestern biotechnology scientists are addressing this issue by studying enzymes that degrade toxic organic compounds and detoxify heavy metals such as mercury. Biological systems that can be exploited to remove toxic compounds from our environment are highly attractive, since they would require relatively little effort or expense to administer. Degradation of toxic compounds may not only result in a healthier environment, but may also allow for conversion of a toxic compound to an economically valuable product, for example, the conversion of raw sewage into fertilizer or energy.

Along with a mission for making discoveries in basic science, the University is also responsible for fostering the transfer of these findings from the research laboratory to industry, so that the nation will benefit from its investment in research. At Northwestern, we have recently established a Biotechnology Center, with help from the State of Illinois, to promote both basic research and technology transfer. The Biotechnology Center faculty are members of a number of departments that cross school and campus boundaries. Our proposal before the Subcommittee for new and renovated facilities targets the five biotechnology departments on the Evanston campus. The University has already constructed a new $48 million life science research building on the Chicago campus, funded from non-Federal sources. Expanded and improved facilities in Evanston will bring biotechnology scientists from different disciplines into close proximity, encouraging a broader, multidisciplinary approach to research problems. The Biotechnology Center will provide the structure for coordinating activities among these scientists, and will therefore play a vital role in the continued development of life science research at Northwestern.

The Center's goals are to increase research support and integrate multidisciplinary research programs, provide an educational focus for the training of biotechnology scientists, and enhance Northwestern University-industry interactions and technology transfer. To accomplish these missions, we sought the leadership of a prominent scientist in biotechnology, and were fortunate to attract Dr. Catherine Propst to the position of Director of the Biotechnology Center. Dr. Propst has had significant experience in biotechnology as a senior executive in major pharmaceutical companies, and as president of a smaller biotechnology company.

Northwestern's Biotechnology Center facilities are ideally located on the Evanston campus, which is surrounded by 39 biotechnology companies in the Chicago area. The combination of Northwestern's excellence in biotechnology and its location convinced the State of Illinois to participate in the founding of this Center. Both Northwestern and the State expect that the Center will have a major economic impact on the Chicago area, the state, and the Midwest region by bridging the gap between the University and Chicago area corporations. The success of the Biotechnology Center in fostering closer ties between the academic and industrial sectors in this region will provide the foundation for a broader University-industry association that will include biotechnology companies throughout the country.

The formation of productive associations between Northwestern University and industry is already well underway. Over the past decade, collaborative research efforts between University and industry scientists, and industrial support for University-based research have increased substantially. Industry now provides nearly $15 million for research at Northwestern, compared to less than $1 million in 1980. Collaborative relationships between Northwestern faculty and biotechnology companies include Abbott Laboratories, G.D. Searle, Amersham, Baxter Healthcare, Upjohn, Nutrasweet, Kraft, Eli Lilly, Enzyme Biosystems, Amoco Technology, and Promega. Northwestern scientists have also initiated collaborative research projects with the Biotechnology Research and Development Corporation (Peoria), a consortium of seven United States corporations and the University of Illinois, that funds cooperative research and development endeavors.

To forge solid connections to industry, the Biotechnology Center will capitalize on Northwestern's already outstanding record of biotechnology transfer. Our technology transfer office manages patent and licensing agreements for industrial use of discoveries made at Northwestern. Technology transfer is also accomplished through placement of students trained at the undergraduate, graduate, and postdoctoral levels into agriculture-related industries. For example, since 1970 over two hundred students have received their Ph.D. degrees in the life sciences at the University, and at least seventy of them are employed by biotechnology firms. These corporations recognize the importance of Northwestern in training scientists who may move to industry upon graduation; they provide financial support for graduate student training in biotechnology, and for summer research internships for underrepresented minority students.

Interactions with local corporations include the appointment of industry scientists to adjunct faculty positions in biotechnology-related departments at Northwestern. Industry scientists already participate in the highly successful Industrial Associates Program of the Department of Chemistry and the Tech Corporate Partners program of Northwestern's McCormick School of Engineering and Applied Sciences. One aim of the Biotechnology Center is to generate a similar partnership program between the University and industry that concentrates on biotechnology.

Industrial and University scientists are also brought together through the Northwestern University/Evanston Research Park, which was established in 1986 as part of an initiative to promote University-industry interactions. The Research Park assists technology transfer by providing both incubator space for start-up firms and laboratory or office space for larger corporations. Presently, thirty-seven firms are located in the Research Park, including both small, start-up and large, established biotechnology companies. The Biotechnology Center has already participated in attracting additional biotechnology firms to this Research Park, including large companies such as Kraft Foods and small companies such as Genesmiths Limited, thereby establishing a strong foundation for future collaborations and transfers of technology between the University and industry.

For these goals of the Biotechnology Center to be achieved, it is essential that we modernize and expand facilities committed to biotechnology. Planning for the new and renovated facilities began in 1987-88, and ground-breaking for the new life science building took place in December, 1988. Presently the building enclosure has been completed, the roofing and perimeter enclosure are in place, and interior construction is well underway. The initial phase of construction is scheduled for completion in January, 1992, and the subsequent phase is planned for completion in September, 1992. Reconstruction of biotechnology laboratories in the Technological Institute Building for faculty in Biomedical Engineering, Chemical Engineering, and Chemistry is now in the programming stage.

To maintain the competitiveness of the United States in the increasingly global and health-oriented marketplace, continued and expanded support of basic life science research is critical. Individual research programs at Northwestern University explore many of the major areas of life science. However, Northwestern goes beyond maintaining a group of independent laboratories; it brings people and facilities together to encourage a mixture of scientific approaches and a concerted and synergistic effort to tackle large problems. No single laboratory or institution can provide all of the answers, and findings in one field may lead to even more significant applications in another area. Federal support for Northwestern's Biotechnology Center facilities will foster this multidisciplinary approach by providing essential research space and by encouraging closer interactions among researchers. Support for these facilities will lay the groundwork for future strength in American agriculture.

I am pleased that, as a result of your Subcommittee's funding for a feasibility study by the USDA Cooperative State Research Service, the review panel made the favorable recommendation that the Biotechnology Center facilities have "the potential to increase the capacity at Northwestern University for research discoveries which could have a significant, long-term impact on U.S. agriculture." In conclusion, I wish to thank you and your Subcommittee for funding the feasibility study and to urge your continued support of our proposal in your FY1992 legislation. Our proposal describes the Biotechnology Center facilities costing $24.4 million, $12.4 million of which is being financed by Northwestern and private funds. Therefore, we are requesting $12 million from the Federal Government to ensure that the progress made to date on this project will continue and benefit not only Northwestern University, but also the State of Illinois, the Midwest, and the nation as a whole.

STATEMENT OF THE ORGANIZATION FOR THE PROTECTION AND ADVANCEMENT OF SMALL TELEPHONE COMPANIES

PROJECT: Rural Electrification Administration (REA) telephone loan programs.

ACTIONS: The REA direct and guaranteed loan programs and the Rural Telephone Bank loan program should be continued and adequately funded. Congress should reject the administration's proposals to eliminate the direct and guaranteed loan programs and replace these loan programs with a program of 70 percent guarantees of private sector loans.

Funding levels for the REA telephone lending programs should be restored to FY 1990 levels.

Adequate staffing should be maintained throughout the agency to ensure prompt processing of loans, as well as necessary technical guidance and engineering assistance.

The REA program provisions enacted as part of the 1990 Farm Bill should remain in place.

The Organization for the Protection and Advancement of Small Telephone Companies (OPASTCO) is a national trade association representing more than 400 independently owned and operated telephone systems throughout the United States. OPASTCO's membership includes both commercial telephone companies and cooperatives, and nearly three-fourths of its members are REA borrowers. Collectively, OPASTCO member companies serve nearly 1.75 million subscribers.

OPASTCO has long supported the REA telephone lending programs and believes that the continuation of a strong REA is vital to the future of rural America.

The REA played a major role in the creation of today's rural telecommunications infrastructure and in the overall economic development of rural areas. Since the REA telephone lending program began in 1949, the financing has provided telephone to more than 5 million subscribers. The number of REA borrowers has grown from less than 20 to 960.

The accomplishments of the program are impressive, but its mission is far from complete. The REA programs remain essential to the continued development of a modern nationwide telecommunications network that includes all of rural America.

As the industry enters the information age, telephone companies of all sizes are faced with the need to install new equipment in order to provide the advanced services their customers need, expect, and deserve. Without REA funding, small companies will not be able to offer these services at a quality and price equal to that available to residents of urban areas.

Many businesses are now looking to locate in rural areas, and they expect to have access to the advanced services they find necessary to operate in today's business environment. Without REA funding, many of the nation's small rural telephone companies will not be able to implement the digital switches, fiber optic cable, and other equipment and facilities necessary to provide information age services without dramatically increasing their customers' basic local service rates.

Maintain the Direct and Guaranteed Loan Programs

The continued existence of the REA programs is important to small rural companies. In its budget, the administration proposes to eliminate the REA direct and guaranteed loan programs and replace them with a program of 70 percent guarantees of private loans. The administration further proposes shifting all REA lending to the Rural Telephone Bank (RTB), cutting the bank's lending authority from $177 million to $125 million, and raising the bank's interest rate.

These proposals would virtually destroy the REA telephone programs. Many small companies do not qualify for commercial loans, and the likelihood of lenders making loans to these small companies in the current financial climate is marginal at best. Also, the increased RTB interest rate could force many borrowers to increase customers' basic service rates.

Under the administration's budget plan, America's rural subscribers -- the real beneficiaries of the REA programs -- would lose.

Restore FY 1990 Funding Levels

Even if all programs are maintained, they will not be effective unless they are adequately funded. OPASTCO believes funding for the REA telephone loan programs should be restored to FY 1990 levels. For years the REA program funding levels remained at the same dollar level while appropriations to many other agencies increased. In terms of real dollars, REA actually faced a decrease in funding during this period.

In late 1990, REA, along with other agriculture programs, faced a severe 25 percent cut to meet budgetary requirements. While this was presented as part of an overall five-year budget plan, the administration ignored this and proposed further cuts in loan levels.

OPASTCO believes small companies' continued need for funds to make the necessary capital investments to bring the information age to rural America necessitates higher lending levels and respectfully requests a reinstatement of the FY 1990 amounts.

Ensure Adequate Staffing

Another important function REA has provided throughout its history is technical and engineering guidance and support. During recent years, however, the staff for the departments responsible for these functions, as well as REA staff in general, have been cut extensively. Currently only 149 individuals are employed in the REA telephone programs.

OPASTCO strongly supports REA's continued provision of these important services to borrowers and asks the subcommittee to ensure the necessary funding is provided.

Maintain the 1990 Farm Bill Provisions

Finally, OPASTCO asks that the subcommittee support maintaining the REA program provisions enacted as part of the 1990 Farm Bill. The administration is attempting to portray these measures as a threat to the government's loan security. But in fact, the provisions actually represent a reaffirmation of the REA's basic mission and serve to enhance the operations of the agency and ensure the telephone loan programs are administered in accordance with the original intentions of the Rural Electrification Act.

The REA has attempted to turn these requirements into threats to the program and in fact has used them as a basis for virtually shutting down the program. Instead of helping borrowers and their subscribers, the REA is hurting them.

Many of the provisions the administration seeks to repeal are those which Congress in the past included each year as part of the agriculture appropriations measure. They are now law. OPASTCO urges the committee to maintain these provisions, including the prohibition on REA's general funds policy, the prohibition against REA directing the order in which borrowers draw down funds on multiple loans, the ability of borrowers to seek funding for all RE Act purposes, and the ability to request an amortization period of up to 35 years.

The REA programs cost the government very little -- all funds are repaid, and there has never been a default on a telephone loan.

The REA is rural development at its best. The agency has made it possible for the development and continuance of a strong rural telecommunications network which benefits not only the residents of rural America, but also each and every United States citizen who uses the nationwide telephone network.

This subcommittee and other members of Congress have long supported the REA telephone programs. OPASTCO appreciates your past support and looks forward to your future support and working with you in developing an even stronger REA.

STATEMENT OF HON. CLAIBORNE PELL, U.S. SENATOR FROM RHODE ISLAND

Dear Mr. Chairman:

I am writing to submit testimony on behalf of myself and Senator John H. Chafee. We are seeking $8.4 million to fund the first phase of construction for the Coastal Institute on Narragansett Bay at the University of Rhode Island (URI).

As you know, this is a follow-on request to the $1.94 million which you and the members your committee appropriated last year for the architectural and engineering work.

In addition, I am submitting testimony by Robert Duce, Dean of URI's Graduate School of Oceanography; Robert Miller, Dean of URI's College of Resource Development; and Scott Nixon, Director of the Rhode Island Sea Grant Program.

The Coastal Institute building program at URI (which is both a Land Grant and a Sea Grant university) would be supported by matching funds from Agricultual Research Service's Building and Facilities Account.

This specific Coastal Institute building would primarily house the College of Resource Development, including scientists associated with three departments now scattered on the main campus--Resource Economics; Fisheries, Animal, and Veterinary Science; and Natural Resources Science.

This same building also will house the Coastal Resources Center, which is concerned with the management of coastal resources, including those which might be allocated to aquaculture systems. In addition, it will provide space for a cadre of visiting scientists.

This building clearly presents an exciting chance to unite a group of closely related disciplines under a single roof. USDA endorsed the proposed construction program and, thanks to you and your fellow committee members, USDA already is providing $1.94 million in start up funds.

Your attention is most appreciated.

Ever sincerely,

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Claiborne Pell

Mr. Chairman, thank you for this opportunity to testify once again in support of an exciting initiative at the University of Rhode Island (URI): the construction of buildings to house the Costal Institute on Narragansett Bay. My colleague, Senator Chafee, also is testifying in support of this initiative.

I have arranged for you to receive testimony on the Coastal Institute from some of URI's own experts: Robert Duce, Dean of the Graduate School of Oceanography; Robert Miller, Dean of the College of Resource Development; and Scott Nixon, Director of the Rhode Island Sea Grant Program.

Two years ago, I requested and received $30,000 for a feasibility study of this construction by the Department of Agriculture. That study was carried out and the resulting favorable report endorsed URI's construction plans.

Mr. Chairman, as you know, last year this Committee approved $1.94 million for architectural and engineering work. Thanks to your hard work, that appropriation was signed into law and URI will be receiving those funds shortly.

I am here again this year to urge you to approve a total of $8.4 million as the federal match to complete the first phase of construction of the Coastal Institute on Narragansett Bay at the University of Rhode Island.

As I noted last year, the Coastal Institute is an exciting opportunity for the nation. Three decades of state and federal investment have created an unequalled capacity to do research, to teach, and to carry out public education in coastal marine and land related subjects.

We now have the opportunity to build on these decades of accomplishment by providing facilities for the scientists and their important work at the Coastal Institute on Narragansett Bay.

The Coastal Institute scientists will study our coastal ecosystems. They will research and teach about the relationship between land based and water based production. They also will look for systems to assure continuous productivity of the coastal land and water.

A significant quantity of prime agricultural land lies within coastal systems and our coastal bays and estuaries are among the most productive in the world. The coastal land and waters must be wisely managed for the benefit of all the citizens, not only of Rhode Island, but of the nation.

While the Coastal Institute on Narragansett Bay will look to Rhode Island's coast and to Narragansett Bay as important study areas, the scientists of the Institute will have much broader interests.

Rhode Island, because of its location and current state of development, and the presence of the Gulf Stream close to shore, contains an amazing amount of diversity of both its land and water coastal resources. This allows Rhode Island to be a laboratory for the study of issues and problems in coastal resource use and management of concern across the nation.

The Coastal Institute on Narragansett Bay will study and evaluate environmental disasters, such as the World Prodigy and the Exxon Valdez oil spills or the massive pollution from both the spills and the oil fires in Kuwait. (Scientists from URI played important roles in measuring the impact of all these events.)

The Coastal Institute will provide continuous evaluations of the ecosystems which are affected by such tragic events. The scientists at the Coastal Institute also will consider production activities in the coastal zone such as irrigated agriculture, and fresh water and marine aquaculture.

URI scientists already are working in cooperative research projects with scientists in other states. Recent examples of these projects range from the study of drainage problems and water recirculation in the San Joaquin Valley of California to coastal resource use and management on the Chesapeake and San Francisco bays.

The Coastal Institute will investigate coastal resource use systems which recognize the interests of all the users of our coastal zones from aquaculturists to tourists and recreational boaters. It is the fruition of years of the pursuit of excellence in coastal and marine studies at the University of Rhode Island.

The URI Graduate School of Oceanography and the various academic department of the College of Resource Development have world wide recognition in their chosen areas of specialization. Their scientists are active around the world, for example in USAID coastal projects in Thailand, Equador and Sri Lanka.

The Coastal Institute will be housed primarily in two buildings: one on the Bay Campus in the Town of Narragansett (to be built by the State of Rhode Island) and the other on the Main Campus in the Village of Kingston (to be built with USDA support).

The estimated cost of this building on the Main Campus, to be constructed in three stages, is 18.43 million dollars. I urge you to appropriate the 8.4 million dollars needed this year by URI for the first phase of construction of this important structure.

The proposed building, primarily for the College of Resource Development, will house scientists associated with three departments now scattered on the main campus--Resource Economics; Fisheries, Animal, and Veterinary Science; and Natural Resources Science.

It also will provide space for a Coastal Resources Center now located on the Bay Campus and space for a cadre of visiting scientists.

The entire Coastal Institute on Narragansett Bay will be physically comprised of the following components:

Building	Gross Sq.Ft.	Cost	Fund Source
Atmospheric Chemistry Building--Bay Campus	25,000	$3.3m	URI bonding issuance (Authority Nov. 1986)
Coastal Institute Building--Bay Campus	60,000	$7.0m	URI bonding issuance (Authority Nov. 1990)
Coastal Institute Building--Main Campus	79,700	$18.434m	USDA
Classroom Building--Main Campus	38,000	$5.8m	URI-Bd of Govs.approval for Nov.1992 referendum
Life Sciences Building--Main Campus	24,500	$4.9m	URI-Bd of Govs.approval for Nov.1994 referendum
Aquaculture Wet Lab East Farm *	3,800	$0.76m	USDA

* The last item on this list, the Aquaculture Wet Lab, will house brood stock, rearing, and aquatic research environments for fisheries and aquaculture scientists. However, no scientific staff will be housed there.

In summary, the continued support of USDA is essential to the construction of the Coastal Institute facilities. The completion of those facilities, in turn, will enable the Coastal Institute to fulfill its urgent mission.

By the turn of this century, over two-thirds of the world's population will live within fifty miles of a coastline. Ours is a particularly rich land and water resource area which supports important agricultural and fisheries production systems.

The understanding and wise management of these coastal ecosystems is vital to all of us. The Coastal Institute, as proposed, is uniquely positioned and designed to help provide that answers and scientific direction that we need.

As defined by URI, the overall objective of the Coastal Institute "will be to generate knowledge and formulate policies for using and managing coastal resources in a manner which will sustain the natural ecosystems and contribute to human welfare."

The specific objectives of the Coastal Institute are:

(1) to stimulate, coordinate and conduct research on coastal lands and waters with the goal of understanding the scientific and social problems and proposing solutions.

(2) to undertake a comprehensive educational program for a variety of constituencies, including traditional university students, special interest groups (such as environmentalists, government leaders, industry, the press and those charged with the regulation and management of the coastal zone), as well as the general public.

(3) to provide scientific, technical, management and policy support to State and Federal agencies and the commercial sector on matters relating to the coastal zone.

The Coastal Institute takes full advantage of both the Land Grant and Sea Grant College Programs at the University of Rhode Island. In addition, it has the enthusiastic support of Rhode Islanders at a time when the entire state is suffering through extraordinarily difficult economic times.

Mr. Chairman, you and your colleagues on the Committee have already given votes of confidence to the Coastal Institute in the form of a favorable evaluation study and initial start up funding.

Now that enthusiasm is building and the architectural and engineering work is underway, I urge you to follow up with the funds needed for the first phase of construction.

Thank you again for this opportunity to present testimony and thank you for all you have done alrady to foster the Coastal Institute on Narragansett Bay.

STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM RHODE ISLAND

Thank you Chairman Burdick, Senator Cochran, and members of the Appropriations Subcommittee on Agriculture, Rural Development, and Related Agencies, for permitting me to submit testimony for the record concerning the significance of the University of Rhode Island's proposal to establish a Coastal Institute on Narragansett Bay. The University of Rhode Island (URI) has proposed construction of the Institute as a function of it's Coastal Oceanography Initiative, with the objective of achieving excellence in marine research and education.

The FY `90 Agriculture, Rural Development, and Related Agencies Appropriations Act, P.L. 101-161, included funds for the Cooperative State Research Service (CSRS), of the United States Department of Agriculture (USDA), to review building feasibility studies proposed for Federal facility grants. A CSRS Review Team visited the URI in March of 1990, and the Review Panel subsequently endorsed the building feasibility plan and the research mission that it is intended to support.

At this time, the URI is seeking to obtain $8.4 million for the first phase of construction of the Coastal Institute. I urge the Appropriations Subcommittee members to include in this year's bill appropriate funds to the USDA for the establishment of the Institute. The importance of collecting sound scientific information regarding the impact of man's activities on coastal resource systems cannot be overstated. Establishment of the Coastal Institute on Narragansett Bay provides an invaluable opportunity to collect vital information on the health of our oceans. This information leads to the development of solutions to the multitude of environmental problems associated with the degradation of coastal estuaries.

As you may know, the major sources of estuarine pollution are agriculture, urban development, and deep water activities. Information concerning the interrelationships between these sources has important implications for future trends in these activities as well as for the world's fisheries. The Institute will provide the research planning, coordination, and environment for multi-disciplinary study of the coastal zone's environmental problems and social implications.

The specific objectives of the Coastal Institute on Narragansett Bay are threefold. First, the program seeks to stimulate, coordinate, and conduct research on coastal lands and waters with the goal of understanding associated problems and proposing solutions. Second, the Institute proposes to undertake a comprehensive educational program for a variety of constituencies, including traditional university students, special interest groups, and the general public. Third, the program will provide scientific, technical, management, and policy support to State and Federal agencies and the commercial sector on coastal zone activities.

The Institute will contribute to national and global understanding of problems and policies related to the preservation and sustainable development of coastal resources through focused activity on Narragansett Bay and adjacent coastal lands and waters. The activities of the Institute will bring together scientists from both the Bay and Main Campuses of the University of Rhode Island, government research organizations such as the Northeast Marine Fisheries Service, the National Park Service, and professionals from all over the world.

The Subcommittee on Agriculture, Rural Development and Related Agencies, through the USDA, is in a position to contribute to the Coastal Institute by providing the URI with the funding requested for construction of the facilities. In my estimation, the long-term value of the proposed Institute far exceeds the financial investment requested. I strongly encourage the members of this Subcommittee to support the Coastal Institute at Narragansett Bay. Thank you.

STATEMENT OF ROBERT A. DUCE, DEAN, GRADUATE SCHOOL OF OCEANOGRAPHY, UNIVERSITY OF RHODE ISLAND, AND SCOTT W. NIXON, DIRECTOR, RHODE ISLAND SEA GRANT PROGRAM

INTRODUCTION

A major accomplishment of modern oceanography has been the measurement and mapping of productivity in the world ocean. The striking general picture that has emerged is one of central open ocean deserts surrounded by a coastal rim of remarkable fertility. Nowhere is this more evident than in the recent views of earth from space in which the much higher concentrations of chlorophyll in marshes, seaweed beds, and the phytoplankton of coastal waters stand out against the empty blue of the open sea. And it is from these productive coastal environments that over 90% of the world's commercial fisheries catch is taken.

The coastal waters most immediately important to the people of Rhode Island — Narragansett Bay, the coastal salt ponds and lagoons, Rhode Island and Block Island Sounds, and the Georges Bank area — are among the most productive of these marine ecosystems. For over 300 years their rich bounty has helped to sustain and support our appetite and our economy, but we are just beginning to understand something of the complex interactions that lead to the great yields of shellfish and finfish along the world's coasts. While technological advances in our ability to find and capture fish and in our ability to preserve and market seafood products of high quality have been dramatic, increases in our knowledge of the fundamental processes that make the coastal waters so productive have been achieved much more slowly.

The location of the most productive marine ecosystems makes our ignorance particularly dangerous, since virtually everything that is mined, manufactured, or used on land may eventually enter our bays and estuaries. In addition to the pollutants discharged directly into streams and rivers, the water washing off agricultural fields, lawns, highways, and parking lots also carries a large burden of chemicals; and many pollutants discharged into the atmosphere are later deposited on land and washed into streams and rivers and carried down to the coast. At present, we know very little about how this diverse and complex mix of chemicals will affect Narragansett Bay or any other coastal marine ecosystem. Of course, there is also a rapidly increasing population living along the shore that discharges sewage and industrial wastes directly into marine waters. All of these sources come together to make our coastal waters among the most intensively polluted environments on earth. For example, each year Narragansett Bay receives more nitrogen and phosphorus per acre than is applied to the average acre of corn or soybeans.

The coincidence of geography that leads us to pollute so intensively the same portion of the ocean that provides us with food and jobs (and beauty and fun and restoration of spirit) has led to a major challenge for those who have the responsibility to manage and regulate coastal resources and protect human health. The need for scientific information about, and an increased understanding of, the coastal ocean and its associated estuaries, bays and lagoons is unprecedented. Approximately 45% of the U.S. population now lives along the coast. This dramatic concentration of population has focused public attention and concern as never before on estuaries, bays, and other coastal waters. For example, recent summers have produced cover stories on the coastal marine environment in *Business Week, U.S. News and World Report, Time* and the *New York Times.* It is no accident that the Environmental Protection Agency (EPA) has established an Office of Marine and Estuarine Protection to administer a national Bays Program, that the Under Secretary for Oceans and Atmosphere in the National Oceanic and Atmospheric Administration (NOAA) hass launched a major new Coastal Ocean Initiative, and that the Land-Sea Interfaee has emerged as a new program area in the National Science Foundation.

As important as the problems of pollution and fisheries productivity are, however, the scientific challenges of coastal oceanography involve other questions as well. The impact of global climate change from greenhouse gases is sharply focused along the coast by the consequences of sea level rise, but we also know very little about the effects of temperature increases, or changes in freshwater input, or increases in ultraviolet radiation on coastal marine ecosystems. It is also clear that we know relatively little about how the intense biological metabolism of the coastal zone may interact with the atmosphere through the production of oxygen, carbon dioxide, methane, hydrogen sulfide, nitrous oxide, nitrogen, and other gases. Similarly, the passage through coastal ecosystems of natural weathering products from the continents, as well as of anthropogenic pollutants, may alter the rate and form in which these materials reach the ocean. And, just as ecological processes inshore can influence the biology and geochemistry of the open sea, it is also evident that large-scale oceanic and atmospheric processes may have a major impact on local environmental conditions along the coast. Many of these coastal issues also have profound implications for our social and economic systems.

THE COASTAL INSTITUTE ON NARRAGANSET BAY

After careful consideration of the important and immediate problems facing Rhode Island, the United States, and the rest of the world with regard to the health and productivity of the coastal environment, and in light of the very complex but also very exciting scientific and social science challenges involved in gaining an increased understanding of coastal ecosystems, we feel that the time is right for The University of Rhode Island to develop a Coastal Institute. We have devoted much of our effort during the past 25 years to becoming an institution recognized for the quality of its open-ocean research. We are already engaged in developing an exciting new program in atmospheric chemistry and global geochemical systems. An initiative in coastal oceanography will build on both of these strengths, engage a number of our faculty who have not been involved extensively in earlier programs, and foster a stronger interaction between the Graduate School of Oceanography and many departments on the main campus of the University of Rhode Island in Kingston. It will also build on the University's experience in coastal management, marine resource economics, and marine affairs, and it will strengthen our relationships with a number of state agencies.

- The Coastal Institute on Narragansett Bay would serve as the focus of scientific research on Narragansett Bay and the rest of the Rhode Island coastal environment, from the farthest reaches of the tide to the edge of the continental shelf. While maintaining a strong commitment to our local waters, it is also our intention that the quality of the staff and facilities at the Coastal Institute should be such that it could become a nationally and internationally recognized authority on the understanding and management of coastal ecosystems throughout the world. Because coastal areas are so intensely involved in human affairs and impacted by human activities, we recognize that the Coastal Institute will need to include a broad mix of social as well as natural sciences, and we will seek the active participation of both groups. At present, no similar academic organization exists to serve the needs of Rhode Island or the national and international coastal communities.

The Coastal Institute on Narragansett Bay will be developed by faculty and staff at the Graduate School of Oceanography and at several departments in the Colleges of Resource Development, Arts and Sciences, and Engineering. We also seek the guidance and active participation of the Rhode Island Department of Environmental Management, including the staff of the Narragansett Bay Project, the Rhode Island Coastal Resources Management Council, the Rhode Island League of Cities and Towns, the U.S. Environmental Protection Agency, the National Marine Fisheries Service (NMFS), Save the Bay, and other appropriate groups who are actively concerned with the use and protection of the coastal environment.

MISSION OF THE COASTAL INSTITUTE

The mission of the Coastal Institute on Narragansett Bay would be to carry out long-term basic research and monitoring; to evaluate and develop management strategies and policies for coastal environments; to provide information to local, state, and federal government agencies concerned with managing coastal resources as well as to the press and concerned citizens; and to carry out educational activities. While the Coastal Institute would be as responsive as possible to appropriate requests for short-term studies of immediate problems, its major emphasis would be on fundamental research involving the health and productivity of Narragansett Bay and other coastal systems. The Coastal Institute would not be intended to serve as an advocate or an adversary, nor would it compete with private consulting firms on site-specific pollution control projects. Some of the different types of activities that would be part of the Coastal Institute are outlined below:

- **Research** - Despite the fact that quantitative studies of the coastal marine environment have been carried out for over 100 years, we remain surprisingly ignorant about some of the most elementary aspects of coastal marine ecosystems, including Narragansett Bay. For example, while we know reasonably well the kinds and abundances of organisms present in the Bay, we do not know why the abundance of various species changes from year to year, nor do we know how the abundance of species will change if pollution inputs increase or decrease. Long-term experiments on the basic ecology of the Bay and other coastal systems have generally not been carried out. A full understanding of coastal ecosystems in general and Narragansett Bay in particular requires complex multidisciplinary and interdisciplinary research programs lasting, in some cases, for 5 to 10 years or longer. The Coastal Institute will provide a mechanism to bring scientists and engineers together with social scientists, state and federal agency specialists, and outreach agents and provide them with administrative support, laboratory space, technical support, and at least a partial financial base to continue their work.

- **Monitoring** - Our understanding and management of Narragansett Bay and other R. I. coastal systems is severely restricted by the lack of a long-term data base on physical, geological, chemical, biological, and socioeconomic characteristics. Various efforts are now under way or in the planning stage that will help to provide at least some of the necessary data for monitoring the Rhode Island coastal environment, including state agency programs, citizen volunteers, and the Narragansett Bay Project. We see the Coastal Institute as providing analytical support and quality control where needed, and serving as an overall facility for data storage, synthesis, and trend analysis. While state and federal regulatory agencies would have their own responsibilities and uses for data that they themselves must collect, these data could also be archived at the Coastal Institute, and Coastal Institute staff might assist in the preparation of reports such as the "State of the States' Waters," etc. An ongoing analysis of the monitoring data would also provide very useful information for the research program at the Coastal Institute and help to identify additional problems in our understanding of the Rhode Island coastal environment.

- **Management Strategies and Policy Formulation** - During the past century we have witnessed a process of developing and testing organizations and mechanisms for managing the resource base upon which human society depends. In coastal areas, where people and often conflicting activities are more highly concentrated than in any other region of the planet, the need for intersectoral management that crosses the traditional boundaries of governmental authorities has emerged as a necessity. As yet, however, the process of bargaining and accommodation has not produced the kinds of agencies or even the planning and regulatory techniques that are required. The state coastal management programs that emerged after passage of the National Coastal Zone Management Act in 1972 were initially billed as the first experiment in the United States in land use planning at a national scale. The Coastal Resources Management programs were also a response to a decade of studies that examined the growing stresses on the nation's estuaries. The Coastal Zone Management programs that emerged, however, did not deal directly with water quality and fisheries — two central issues for estuarine management — and were able to scrape together only minimal authorities over land use. The EPA-sponsored estuarine management plans constitute another attempt to solve the same difficult set of issues. So far, some of the most exciting advances have been made at a small scale, through Special Area Management Plans, that attempt to draw together all the priority resource management issues in a coherent geographic region and through an intensive effort of public involvement and bargaining among agencies, to formulate an acceptable "treaty" and common course of action. The Rhode Island Salt Ponds Plan is recognized as one of the more successful attempts of this kind.

- **Information** - At present there is no central location within the university where government agencies, industries, fishermen, the press or the public and public interest groups can go for information about Narragansett Bay and other coastal marine resources in Rhode Island. Based on the experience of the University of Rhode Island Sea Grant Program and the Coastal Resources Center, there is a great and growing demand for such information. Various factors contribute to this need, including the demographic shift to the coastal zone, increased public interest in ecology, and a great increase in the number and complexity of regulations and permits relating to the environment. The Coastal Institute will also serve an important role as an unbiased forum for compiling, presenting, and discussing information about user conflicts and environmental problems in the coastal zone. It is a challenging responsibility for the university in a time when issues of great importance to the public are often too complex and technical to be treated adequately by the press. The Coastal Institute would perform this role by holding public workshops, preparing "white paper" reports, conducting technical background briefings, and setting up educational exhibits and displays.

- **Education** - The long-term key to the wise use and protection of the Rhode Island coastal environment and its resources lies in public education. The success of existing programs such as the Narragansett Bay Classroom, the Blue Lobster, and the Graduate School of Oceanography Public Lecture Series documents the interest of the public in coastal issues. At present, however, there is no facility at The

University of Rhode Island where the public can go to learn about Narragansett Bay, the Rhode Island salt ponds, Georges Bank, etc. The Coastal Institute would develop a public education capability that would be modest in scale but of very high quality. The intent would be to emphasize the challenges and excitement of marine research with an emphasis on examples from the Rhode Island coastal area. There would be a small number of changing exhibits, perhaps including lectures, films, etc., dealing with issues of the coast — why are those issues important, how do we study such problems, what is being learned, why don't we know more?

BUILDINGS FOR THE COASTAL INSTITUTE

The Coastal Institute on Narragansett Bay will occupy two buildings, one located on the Narragansett Bay Campus and the other on the Kingston Campus. In November, 1990 the citizens of the State of Rhode Island passed a referendum which provides $7 million for a building for the Coastal Institute on the Narragansett Bay Campus. This building will be approximately 35,000 square feet in area. It will contain space for offices and laboratories for faculty of the Graduate School of Oceanography as well as for faculty from the Kingston Campus whose research would benefit by being located at the Narragansett Bay Campus; public outreach facilities including classrooms and displays for primary, secondary, and adult education classes, a visitors center, and [illegible] small bookstore; offices for the Rhode Island Sea Grant Program and the Coastal Resources Center; and administrative space for the Coastal Institute. The Narragansett Bay Campus building will be primarily for programs within the Graduate School of Oceanography and will particularly emphasize the programs that require easy access to Narragansett Bay and to fresh seawater. At the present time a university-wide committee is planning the details of the administrative structure of the Coastal Institute and a building committee has been appointed by the President of the University of Rhode Island to begin planning the details of the location, space, etc. of the Narragansett Bay Campus building for the Coastal Institute.

A second building, to be supported largely by funds from the U.S. Department of Agriculture, will be located on the Kingston Campus of the University. This building is described in more detail in the testimony of Dean Robert Miller and Professor Thomas Weaver from the College of Resource Development. Their testimony is submitted concurrently with this document.

The combination of the two facilities on the Narragansett Bay Campus and the Kingston Campus will provide space for the most comprehensive and broad-ranging program of study of the coastal environment available in the United States. A unique characteristic of this Coastal Institute will be the combination of natural and social scientists to address jointly the multifaceted and interdisciplinary problems of the coastal zone. Another cornerstone of the Coastal Institute will be the close cooperation and interaction among personnel from the University, federal agencies, and state agencies such as the Department of Environmental Management. This broad scope will certainly make the University of Rhode Island's Coastal Institute on Narragansett Bay a future world leader addressing the most significant scientific and societal issues facing our coastal waters

STATEMENT OF DR. ROBERT MILLER, DEAN, COLLEGE OF RESOURCE DEVELOPMENT, UNIVERSITY OF RHODE ISLAND

I am pleased to present testimony to you in support of funding from the USDA facilities program for a building on the Kingston campus of The University of Rhode Island which will house components of **The Coastal Institute on Narragansett Bay.** My name is Robert Miller and I am Dean of the College of Resource Development and Director of both the Rhode Island Agricultural Experiment Station and Rhode Island Cooperative Extension. In this testimony I hope to capture for each of you the importance and excitement of a new initiative at The University of Rhode Island called **"The Coastal Institute on Narragansett Bay".**

The **"Institute"** has been established for the multi disciplinary work that will address the natural and human resource management of coastal areas in the 21st century in new and innovative ways. This mission require the establishment of new working relationships between physical, social, biological and other scientists across the University and from various state and federal agencies.

As visualized, **"A Coastal Institute on Narragansett Bay"** is an organizational unit consisting primarily of elements of the University's College of Resource Development and Graduate School of Oceanography. A part of the **Institute** is located on the main campus in Kingston, Rhode Island; a part is located on the bay campus situated on the West Passage of Narragansett Bay. The **Institute** is designed to achieve maximum interaction of scientists associated with the academic disciplines involved, and free movement and assignment to and from either campus. There are six buildings planned for the Institutes Program Activities. Four buildings are funded or will be funded by the people of the State of Rhode Island. Of these four buildings two are currently funded, one is being planned, and one is under construction. Both of the buildings for which funding is now available are located on the bay campus. Two buildings are requested for U.S. Department of Agriculture funding under the building and facilities account. The primary building is located on the main campus, with a small aquaculture production laboratory located at a nearby research field station. The amount of $19,194,000 is requested from federal sources to be matched by $22,000,000 from non-federal sources.

The academic components which will occupy the buildings are as follows:

- The Atmospheric Sciences Center
- The Division of Biological Oceanography
- The Coastal Resources Center
- The Fisheries, Animal, and Veterinary Sciences Department

- The R.I. Geographic Information System and Environmental Data Center
- The Natural Resources Science Department
- The Resource Economics Department

The first three components are currently administered by the Graduate School of Oceanography and the latter four are in the College of Resource Development.

The constraint on carrying out research and graduate training at The University of Rhode Island on coastal resource use issues has been space. There is little space for scientists in the Department of Fisheries, Animal and Veterinary science to work on new aquaculture systems or on evaluation of animal stress. There are demands for their pioneering research, but no facilities are available. The current facility is scattered over five locations, all of which are inadequate for the work to be done. The Department of Natural Resources Science has a first rank geographic information system but because of lack of a suitable facility, it is not totally coordinated with the work of other departments. Their scientists are working on tracking groundwater pollution, siting landfills, and evaluating the environmental problems on Narragansett Bay.

Faculty in the nationally regarded Department of Resource Economics are working on such issues as landfill siting, the economic impact of marine spills (including the recent tragedy in Alaska), irrigation/drainage in urban/coastal environments (including work in the Say Joaquin Valley of California on the Kestersin drainage problem), fisheries product evaluation in Japanese and European markets and they have opportunities to have visiting scientists from the National Marine Fisheries Service on a long-term basis and from around the world on short-term assignments, but no space is available.

"The Coastal Institute on Narragansett Bay" creates what we believe is a unique opportunity for the College of Resource Development (formally the College of Agriculture). Our proximity to the ocean, the abundance of nearby fisheries resources, and the pressure on the development of our agricultural lands from population growth in our coastal zone, motivated us to strike out in new directions almost two decades ago. We have now strong programs in land use, environmental economics, fisheries and aquaculture, water quality and a state of the art geographic information system. We moved strongly in these areas because we believe that a traditional land grant university agricultural college must be relevant to the critical issues facing society. We now have the opportunity because of our past efforts and the simultaneous development of the world class URI Graduate School Oceanography to create an institute that is unique in the nation. The Institute will address not only problems arising along the 400 miles of Rhode Island coastline, but of the coastal resources of our nation, and indeed, of the world.

Mr. Chairman, congressional appropriations in the USDA budget last year made available $1.94 million for engineering design money for the main campus building and aquaculture facility. We now request your consideration in providing funding for first phase construction for these facilities totaling $8,453, 120.

Thank you for the opportunity of providing testimony in behalf of this request.

ADDENDUM

A Coastal Institute On Narragansett Bay will consist upon completion of the following six buildings:

1. Atmospheric Chemistry Building. This is a structure on the bay campus costing $3.3 million and providing 25,000 square feet gross. The building was funded by the people of Rhode Island through bond issuance authority. The architectural work for this building is complete, and ground has been broken for construction. The facility will house all of the scientists now associated with the Atmospheric Sciences Center. A unique feature of the building is its several "clean rooms", a requirement for research on atmospheric problems.

2. Coastal Institute- Bay Campus Building. Also located on the West Passage of Narragansett Bay, this building is funded by R.I. bond issuance authority of $7.0 million. The structure will house a part of the cadre of scientists now associated with the Division of Biological Oceanography now located in several buildings on the bay campus. Architectural and design services are being sought at this time. The structure is projected at 60,000 square feet gross with an emphasis on modern laboratories for work in marine biology, pollution abatement, and environmental toxicology.

3. Coastal Institute-Main Campus Building. This is the facility for which funding is requested from the USDA. It is projected at 79,700 square feet gross at a cost of $18.434 million. The sum of $1.94 million was appropriated in the 1991 USDA budget for architectural and engineering services for this structure. Although the funds have yet to be made available to the University, the process of architect selection has been started. This building will house primarily Coastal Institute faculty from the College of Resource Development.

4. Aquaculture Production Laboratory-This is a faculty located at a research field station near the main campus known as East Farm. The Laboratory is a

part of the request being made for USDA funding, constituting 3,800 square feet gross and costing $0.76 million. The primary purpose of the facility is that of experimental aquacultural production and aquaculture pathology research. It is disassociated from the Coastal Institute-Main Campus Building in order to take advantage of an excellent aquaculture waste water treatment system already operational at the East Farm research station.

5. Classroom Building-Voter support for bond issuance for this facility will be sought in November of 1992. The facility will consist of 38,000 square feet gross of classroom space, with a projected cost of $5.8 million. There will be no organizational units housed in this building, but formal classes and informal educational and extension activities will be assigned here by administrators of the Institute. One auditorium, two amphitheaters, and eleven classrooms are projected for this facility. The structure will have communications satellite reception with uplink capability to participate in linkages with other institutions, with AGSAT, and with international cooperators.

6. Life Sciences Building-Voter support for bond issuance for this facility will be sought in November of 1994. While the entire structure is projected to provide 180,000 square feet gross and to cost $45.0 million, the part to be associated with the Coastal Institute will constitute 24,500 square feet gross floor space and cost $4.9 million. The microbiological and biochemical disciplines and the electron microscopy facility will be housed here.

LETTER FROM EDWARD D. EDDY, PRESIDENT, UNIVERSITY OF RHODE ISLAND

April 3, 1991

Senator Quentin N. Burdick, Chairman
Agriculture Appropriations Subcommittee
Dirkson S.O.B. 140
Washington, DC 20510-6026

Dear Senator Burdick:

The University of Rhode Island has been a Land-Grant College/University for almost 100 years, a charter Sea Grant College for 27 years, and has gained a national and international reputation for its environmental programs. Faculty and key administrators at The University of Rhode Island are developing the Coastal Institute on Narragansett Bay to coordinate and strengthen our environmental programs affecting the management of our national and state coastal land and water resources. The planned infrastructure for the Institute when completed will include six new buildings costing $41 million and adding 228,000 square feet of necessary offices and laboratories at URI.

The University has raised $10.3 million of a total planned $22 million commitment to the Coastal Institute through state-approved bonding authority. I am pleased that the Congress provided $38,000 for a feasibility study in 1989 and $1.92 million for architectural and engineering services in 1990 for a USDA building which is to be part of the Coastal Institute complex on the main campus. I now ask your continuing support for an additional $8.5 million in this session of Congress for the first phase of construction for this building. I am confident that the benefits of this Coastal Institute initiative will extend far beyond the boundaries of the campus and the state to the nation and, indeed, the world.

Sincerely,

Edward D. Eddy

Edward D. Eddy
President

LETTER FROM BRUCE SUNDLUN, GOVERNOR OF RHODE ISLAND

April 11, 1991

Quentin N. Burdick, Chairman
Agriculture Appropriations Sub-committee
Dirkson S.O.B. 140
Washington, D.C. 20510-6026

Dear Mr. Chairman:

As Governor of the State of Rhode Island I want to share my excitement and support for the University of Rhode Island's new and rapidly developing initiative, the Coastal Institute on Narragansett Bay. This project offers the potential for a true federal-state partnership to provide the infrastructure for an effort which will afford benefits to the nation, the region and the state. I'm especially pleased that Congress has already approved funding for a feasibility study in 1989 ($36,000) and architectural and engineering services money in 1990 ($1.92 million) for a USDA funded facility which will be part of the Coastal Institute. The citizens of Rhode Island have done their part by passing two bond issues totaling $10.3 million, for funds to construct two buildings to house some of the faculty, students, and state and federal agency staff who will make up the Coastal Institute. The most recent bond issues were passed late last year during some very difficult economic times, which highlights the importance our citizens place on this endeavor.

I now ask your continued support in providing funding for first phase construction ($8.5 million) for the USDA funded portion of the Institute during this session of Congress. Continued support by the state and federal partners will help insure the success of this undertaking. Incidentally, I cannot help but mention that in the short term it will give our state economy a welcome boost. As Governor, I am prepared to assist you in supporting this project.

Best personal wishes.

Sincerely,

PENNSYLVANIA APPLE MARKETING BOARD

STATEMENT OF LARRY ELWORTH, PROGRAM COORDINATOR

SUMMARY

Interregional Research Project #4 (IR-4) is the only publicly supported research project to clear pest control agents for minor crop uses.

The clearance of minor use chemicals has become an urgent problem created largely by the accelerated reregistration process under FIFRA 88. As a result, numerous minor crop registrations are being dropped for economic reasons rather than adverse environmental concerns.

The net effect of the minor use problem has been to put the availability of critical crop protection materials in jeopardy. This situation threatens producer welfare and hinders efforts to develop alternate pest control materials for minor uses.

IR-4 has a successful record in doing research to support minor use registrations. Its productivity has been based on cost-effective operation, broad-based involvement in priority-setting, and cooperative working agreements.

A comprehensive plan has been developed by IR-4 to address pressing minor use needs. The plan includes refinements in management and coordination procedures to accomplish 3600 minor use registrations by 1997.

The minimum funding to accomplish this essential task is $12,000,000 dollars annually through FY 97.

As Program Coordinator for the Pennsylvania Apple Marketing Program and a former apple grower I have first hand experience of the critical role that pest control materials play in the production of an ample food supply. As a member of the USDA/CSRS Review Team which recently evaluated the Interregional Research Project #4, I also have first hand knowledge of the essential job being done by that Project to ensure that the availability of environmentally safe materials is maintained.

The Interregional Research Project No. 4, better known as IR-4, is at a crossroads in its efforts to meet the needs of agricultural producers who depend upon minor use pest control agents. The accelerated reregistration process mandated by the 1988 amendments to FIFRA is resulting in the loss of numerous minor use materials. At least 1000 important minor use registrations are being dropped by registrants, not because they pose unreasonable risks but because of economic reasons stemming from the cost of reregistration. However, due to a severe lack of funding, the IR-4 Program is able to assist in the clearance of only 100 uses per year, with the current backlog of 1200 requests increasing annually.

The size of the agricultural sector affected by the loss of these materials is anything but minor. Nationwide the value of "minor" crops is more than 19 billion dollars annually. In Pennsylvania minor crops account for roughly 540 billion dollars or 65% of the cash value of all crops annually. The production of these crops, mainly fruits and vegetables, depends greatly on the availability of pesticides to ensure that the final product is disease and insect-free. The loss of minor use materials can leave producers with no adequate control method. Even major crop producers have been affected, such as wheat growers in Oregon who found a critical herbicide in jeopardy. In other cases, the remaining alternatives may raise health concerns or may damage efforts to minimize pesticide use in Integrated Pest Management (IPM) programs.

The IR-4 Project conducts laboratory studies to establish tolerances for minor use registrations. This is particularly useful in cases where there are no adverse environmental effects and where the registrant will support the use if the data are developed. IR-4 has assisted in the clearance of more than 3600 minor use registrations during its existence. Even when commodity groups have provided the primary funding for the research conducted, the involvement of IR-4 has been essential to the submission and acceptance of the registration package. In addition, IR-4 has provided crucial support to the clearance of 25 minor use animal drugs since 1982. Finally, IR-4 has taken leadership in providing its expertise in the clearance of biorational materials which offer promise in replacing lost or cancelled pesticides.

The approach that IR-4 has taken in accomplishing its job, with only meager financial resources, has been a model for government programs. The Project has been distinguished by its cost effective operation, its inclusive priority setting process, and its cooperative structure. Cost effectiveness has been achieved by IR-4's ability to leverage resources available from cooperating universities, USDA/ARS laboratories, and producer groups. For example, animal drug clearances have been completed with direct investments of only 1/5 to 1/6 the typical commercial cost.

IR-4 has developed a unique system for setting priorities which involves producers, extension agents, pest control advisors, researchers and trade associations in identifying needs for each crop on a regional and a national basis. The "grassroots" priority setting process has ensured that critical needs are met and that the allotment of resources is directly based on identifiable problems in the field. Once priorities are set and projects started the IR-4 Program has been remarkably effective at working cooperatively with researchers and registrants on one side of the process and with EPA and FDA in the final approval process. The Project has earned an impressive reputation for credible work in regulatory submissions.

Despite these credentials and accomplishments, IR-4 presently finds itself in a precarious position. The pressure of reregistration has completely overwhelmed the ability of the staff and resources to respond adequately. The uncertainty of funding in recent years has also resulted in the loss of key scientific and analytical staff. Laboratories are burdened with excessive workloads and obsolescent equipment. Furthermore, the ability of IR-4 to recruit cooperators is seriously hindered by the minimal support levels for field research.

The need for adequate funding is the problem which must be solved if IR-4 is going to accomplish the task expected of it by producers. The need for IR-4 was addressed directly in the 1990 Farm Bill as was the need for increased funding. In response, IR-4 has developed a comprehensive plan to use additional funds to complete 3600 registrations by 1997. The minimum commitment necessary to do this work is $12 million annually through FY 97. These monies will be divided among regional IR-4 laboratories, the USDA/ARS minor use program, IR-4, headquarters, and the states through cooperative research grants.

The use of tax dollars to fund the IR-4 Project has clear justification. The loss of minor use materials is largely a consequence of government action in the reregistration process under FIFRA. The accelerated timeframe has created a situation which seriously affects producers across the country. At the same time the public interest is thwarted. New registrations of more environmentally benign pesticides and biorational materials are being delayed by the logjam of reregistration. In addition, the implementation of IPM programs are being hampered by the loss of minor use materials much to the detriment of environmentally sound pesticide use.

The findings of the USDA/CSRS Review Team emphasize the effectiveness of IR-4 as the only publicly supported research project dedicated to the clearance of minor use pest control agents. There is ample evidence of a clear need for the work done by IR-4 and of the Project's ability to accomplish that work in a credible, responsible fashion. It is simply up to Congress to appropriate the badly needed funds to ensure the welfare of minor crop producers throughout the country.

PHARMACEUTICAL MANUFACTURERS ASSOCIATION

STATEMENT OF GERALD J. MOSSINGHOFF, PRESIDENT

The Pharmaceutical Manufacturers Association, representing the research-based pharmaceutical industry in the United States, appreciates this opportunity to present our views on the Administration's Fiscal Year 1992 budget request for the Food and Drug Administration.

Prompt approval of New Drug Applications by an efficient and effective FDA is vital both to the health of the American people and to an industry that is expected to spend more than $9.2 billion on research and development in calendar 1991. Consequently, we support a significant increase in the budget request of $770 million for FDA operations and oppose the Administration's recommendation that $197.5 million -- or more than one-fourth --of FDA's budget for the coming fiscal year be raised through user fees.

PMA recognizes the difficult choices that will have to be made by your Subcommittee in today's harsh budget climate. However, as Secretary of Health and Human Services Sullivan pointed out in a letter to Budget Director Darman earlier this year, "excluding staff associated with new problems arising during the 1980's--for example, AIDS and generic drugs--FDA staff actually decreased by 16 percent between FY 1980 and FY 1991."

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The resource needs of the FDA have been well documented by a number of studies, and, according to recent news reports those needs will be reaffirmed by the Subcommittee on Drugs and Biologics of the Advisory Committee on the Food and Drug Administration when it issues its report in the next few weeks.

We hope the Committee will agree with these judgments and find a way to augment FDA's budget request for the coming fiscal year.

We also urge that the Committee continue its past opposition to the Administration's recommendation that appropriated funds be replaced with user fees. The Administration's proposed user fees would require new authorization legislation and are both highly controversial and difficult to achieve. They most certainly should not be imposed as a tax simply for deficit reduction.

In July 1990, the Inspector General of the Department of Health and Human Services submitted a final report entitled "Implementing User Fees in the Food and Drug Administration." After listing several possible benefits, the study set forth the following costs:

- "As a practical matter, fees might be difficult to administer and may be too small to warrant the effort of assessment and collection."
- "Firms might be discouraged from or delay applying for agency approval to engage in various activities because of the user fee."

Two further objections to the user-fee approach should be raised. First, the user-fee concept assumes that a benefit is being conferred in return for the user-fee payment. However, it is the American public that benefits from the assurance that drugs are safe and efficacious, as intended by Congress in the enactment of the Federal Food, Drug, and Cosmetic Act. The industry assumes extensive costs in satisfying the regulatory requirements imposed by the food and drug laws.

Second, user fees normally are premised on the fact that users may or may not decide to avail themselves of the services offered. But under existing law, drug companies have no freedom of choice. A pharmaceutical house refusing to pay user fees to the FDA for regulatory activities already mandated by statute would soon go out of business.

In conclusion, we strongly support the FDA's proposed budget of $770 million in the coming fiscal year, plus additional funding to address critical agency needs. We also strongly encourage the Committee to continue to oppose FDA user fees, especially fees that simply substitute private dollars for public dollars without conferring any additional benefits through improvements in the New Drug Approval process.

PRAIRIE PUBLIC BROADCASTING

STATEMENT OF DENNIS FALK, PRESIDENT

SYNOPSIS: Prairie Public Broadcasting requests that the Subcommittee provide $2.5 million for the third year of funding for a five-year program demonstrating the effectiveness of public television in addressing the needs and concerns of rural Americans.

I appreciate the opportunity to present a statement in support of the rural technology grants for statewide public television systems serving predominantly rural areas.

This five-year demonstration program, initially funded in Fiscal Year 1990, has been extremely successful in addressing issues of importance to farmers and other rural residents. I urge the Subcommittee to continue this program in Fiscal Year 1992 at a funding level of $2.5 million.

North Dakota, like most rural states, is facing an economic crisis. Shifting demographics and complex social and educational issues have created a sense of hopelessness and isolation in rural areas. The state now struggles to address these problems and develop strategies directed at implementing economic change while retaining and enhancing the state's quality of life. This situation is not unique to North Dakota, but is reflective of rural America.

The demonstration program funded by this Subcommittee has provided a means to reach our most rural citizens through the medium of television. Through satellite and other telecommunications it is possible to provide rural Americans with an opportunity to explore—live from their own communities—ways in which they can work with others in their state and region to address the issues of greatest concern to them.

Through the grant program established by this Subcommittee, Prairie Public Television has reached thousands of North Dakotans and engaged them in seeking solutions to rural problems such as education, delivery of social services, and economic development. They have been given the opportunity to overcome their sense of isolation and begin to work together toward a common end—re-establishing and maintaining the economic health of their communities. In addition to the on-air discussion, the project includes the wide dissemination of print information such as a comprehensive listing of all economic development resources in the state.

Mr. Chairman, this program is truly in its infancy in terms of its potential to serve rural America. The North Dakota project is demonstrating that public television can play a significant role in addressing the issues of greatest concern to our small towns and our farmers. I urge the Subcommittee to provide $2.5 million in Fiscal Year 1992 to ensure this program's continued success.

PUBLIC VOICE FOR FOOD & HEALTH POLICY

STATEMENT OF ELLEN HAAS, EXECUTIVE DIRECTOR, AND DR. ALLEN ROSENFELD, DIRECTOR OF GOVERNMENT AFFAIRS

We welcome the opportunity to submit written testimony to the subcommittee regarding appropriation of FY 1992 funds for research to be conducted by the U.S. Department of Agriculture (USDA). This testimony urges the subcommittee to approve funding for research on the impact of standards for cosmetic appearance in produce and for research to investigate the obstacles to marketing organically grown foods and food produced with resource conserving methods. Such research is an indispensable component of the national effort to remove policy and marketing obstacles faced by farmers who wish to reduce or eliminate their use of pesticides.

Public Voice is a national nonprofit research, education and advocacy organization working for the public's interest in an affordable, safe and nutritious food supply that is produced in an environmentally sensitive manner. We are joined by a broad based coalition of national consumer, environmental and agriculture organizations working to redirect federal research toward the rapid development of profitable sustainable agriculture practices. (See attachment.) This coalition fully supports our testimony.

RESEARCH ON THE IMPACT OF COSMETIC APPEARANCE STANDARDS ON PESTICIDE USE

OUR RECOMMENDATION

Public Voice and the coalition of consumer, environmental and agriculture organizations recommend that $4 million for FY 1992 be appropriated to fund research to be conducted by the Cooperative State Research Service concerning the impact of standards for cosmetic appearance on pesticide use.

The funds would enable USDA to address systematically some of the most controversial questions raised during the 1990 farm bill deliberations: (1) To what extent are pesticides used for the purpose of ensuring picture-perfect produce? (2) Most farmers would like to reduce their use of pesticides for economic, safety, health and environmental reasons. Do cosmetic quality standards limit farmers' ability to reduce their use of pesticides? and (3) How would consumers react to fresh fruits and vegetables produced with less pesticides if they knew that increased surface blemishes on the produce was the result of reduced pesticide use?

LEGISLATIVE AUTHORIZATION FOR THE RESEARCH IN THE 1990 FARM BILL

Subtitle C of the Fruit and Vegetable Title of the Food, Agriculture, Conservation and Trade Act of 1990, entitled, "Cosmetic Appearance" required USDA to conduct research to "investigate the extent to which grade standards and other regulations governing cosmetic appearance affect pesticide use in the production of perishable commodities" and authorized appropriation of $4 million per year to carry out the program.

The legislation evolved in stages during farm bill debate. Initially, The Senate Committee on Agriculture, Nutrition and Forestry reported the Agricultural Marketing Reform Act (AMRA), as part of its 1990 farm bill. AMRA would have required USDA to reform federal grade standards and marketing order regulations to reduce their emphasis on cosmetic appearance.

However, because of opposition from the fruit and vegetable industry and USDA, AMRA was retracted in favor of a negotiated compromise among interested parties. The compromise legislation, mandated that a research program be undertaken. The legislation was accepted virtually intact by the farm bill conference committee and was supported in a signed letter to the Senate by the legislative representative of the United Fresh Fruit and Vegetable Association, the major lobbying organization for the produce industry.

According to the law, USDA is required to:

- **conduct research** to determine the extent to which grade standards and other marketing regulations affect pesticide use in the production of perishable agricultural commodities.
- **account for the impact of federal grade standards** on pesticide use reduction when developing such standards.
- **implement market demonstration projects** to: (1) educate the public about the relationship between cosmetic quality and pesticide use; (2) offer consumers choices between perfect looking produce and slightly blemished produce to determine their purchasing preferences; and (3) inform those consumers about the agricultural practices used to grow the produce.
- **develop options for food marketing policies** that will address obstacles to pesticide use reduction;
- **establish an advisory committee** of representatives from consumer and environmental groups and food and agriculture industries to review implementation of the subtitle and provide USDA with recommendations concerning implementation.

IMPORTANCE OF THE RESEARCH AND THE NEED FOR FUNDING

U.S. farmers would like to reduce their use of pesticides to reduce their out-of-pocket expenses and respond to concerns about public health, safety and environmental quality. Previous research has shown, however, that fruit and vegetable growers are discouraged from reducing their use of pesticides by quality standards that regulate the cosmetic appearance of fresh produce.

The Agricultural Marketing Reform Act reported by the Senate Agriculture Committee was based on findings of research conducted by the U.S. Environmental Protection Agency, Congress' Office of Technology Assessment, the National Academy of Sciences, and nonprofit organizations between 1978 and 1990. This body of research demonstrated that:

(1) farmers respond to stringent cosmetic quality standards by using heavier applications of pesticides than are needed to ensure yields;

(2) failure to spray enough to eliminate superficial insect damage and ensure blemish-free produce can result in costly downgrading or rejection from the profitable fresh market;

(3) farmers could reduce their use of pesticides without jeopardizing yields if cosmetic quality standards were relaxed; and

(4) consumers will buy superficially blemished produce that is otherwise sound and nutritious if they are provided with information that it is produced with less pesticides.

Despite these findings, the produce industry and USDA argued during the farm bill debate that there is no relationship between cosmetic standards and pesticide use. (It is important to note that neither the produce industry nor USDA has conducted systematic research on the issue.) They urged Congress not to mandate changes in regulations in the absence of further research. The "cosmetic appearance" legislation enacted in the farm bill is the result of a compromise that took into account the concerns of USDA and the produce industry.

On the Way to Market: Roadblocks to Reducing Pesticide Use on Produce, a new Public Voice research report supported by a grant from the Ford Foundation, confirmed some of the major findings of previous research. Ee surveyed major retailers, produce wholesalers and California citrus growers in an effort to assess the impact of cosmetic quality standards on pesticide use in the produce industry. The study found evidence, for example, that stringent cosmetic standards do encourage increased pesticide use. Of citrus growers who responded to the survey and who used pesticides, 44% estimated that more than a quarter of the pesticides they use is for the purpose of meeting cosmetic quality standards. (31% reported that at least half of their pesticide use was for cosmetic purposes.) These findings demonstrate, at a minimum, that industry and USDA claims must be tested by a systematic research effort.

Despite enactment of legislation requiring USDA to conduct "cosmetic appearance" research, the agency failed to request funding for such research in its FY 1992 budget proposal. Without funding, USDA may try to justify ignoring the issue by claiming that it was not given money to implement the legislation.

Such a turn of events would set back the clock for pesticide reduction in agriculture, would precipitate a wasteful repetition of the earlier legislative debate, and would reduce the credibility of the federal government's claim to be addressing the pesticide problem in agriculture. To avoid that unwelcome scenario, we urge the members of the Senate Committee on Appropriations to approve $4 million for "cosmetic appearance" research for fiscal year 1992.

OBSTACLES TO MARKETING ORGANICALLY GROWN FOODS AND FOODS GROWN WITH RESOURCE CONSERVING METHODS

OUR RECOMMENDATIONS

Public Voice and members of the sustainable agriculture research coalition recommend that $4 million for fiscal year 1992 be appropriated to fund research on marketing organically grown foods and foods grown with resource conserving methods. (We recommend that no less than 50% of the appropriated funds be designated for research on organic food marketing.) The research will be part of the National Research Initiative and will be administered by the Cooperative State Research Service. The purpose of the research is to investigate obstacles to marketing organically grown foods and foods grown with resource conserving methods (e.g., jojoba) and develop options for marketing policies and practices that stimulate production and sale of those foods.

The recommended funding would permit USDA to assess the impact of food marketing practices and policies on farmers' ability to adopt and expand their use of organic, and other resource conserving practices. This research would provide essential support for USDA's efforts to successfully achieve the national organic farming and resource conservation objectives written in the 1990 farm bill. In the 1990 farm bill, Congress committed the nation to the development of profitable farming alternatives for farmers who wish to reduce or eliminate their use of agrichemicals. Without a marketing system capable of smoothly handling organically grown foods and foods grown with resource conserving adoption of alternative farming practices is likely to be stifled.

LEGISLATIVE HISTORY

Although the Food, Agriculture, Conservation and Trade Act of 1990 did not authorize the proposed marketing research, the Organic Food Production Act of 1990, included in the Senate's 1990 farm bill, did provide for research on the marketing of organically grown food products. Research on organic food production and marketing had the support of the organic foods industry, the organic farming industry, numerous other agriculture organizations, and consumer and environmental groups. Unfortunately, the research component of the bill was deleted from the final version of the law by the farm bill conference committee.

IMPORTANCE OF THE RESEARCH AND THE NEED FOR FUNDING

Numerous recent national opinion surveys conducted for the food industry and sustainable agriculture organizations indicate that most consumers have a strong interest in organically grown foods and are seriously concerned about the impact of agrichemicals on health and the environment. It is therefore not surprising that retail sales of organically grown foods have increased from $175 million in 1980 to $1.5 billion in 1990.

The ability of farmers to respond to consumer interest, however, can easily be stifled by food marketing practices that are not suited to the distribution, sales, and merchandising of organically grown foods and foods produced with other sustainable methods. Public Voice's recent report, On the Way to Market, provides evidence to that effect. Our survey of major retailers and produce distributors found examples of marketing practices that can inhibit the marketing of organically grown fruits and vegetables.

We found that although sales of organically grown produce increased over the past five years for most supermarkets who responded to the survey, this past year, for the vast majority of respondents, sales of such produce declined or were stagnant. This inconsistency between consumer survey results and actual consumer behavior suggests that consumers may not be able to express their preferences for organically grown produce at their supermarkets.

Our study identified a number of important marketing practices that may be contributing to the problem. For example, supermarket merchandising practices are a key factor in determining consumer purchases. The survey of retailers found that 78% of retailers kept organically grown produce in separate sections and 61% packaged organically grown produce. These practices can inhibit sales by limiting consumer contact with organically grown produce and making it difficult for consumers to choose the quantity and quality they prefer. Other merchandising, distributing, buying and pricing practices have also been identified by previous researchers as possible obstacles to marketing organically grown foods.

In addition to conducting a rigorous investigation of the direct impact of these practices on successful marketing of organically grown foods, a number of other critical research questions need to be addressed by USDA: (1) Do food marketing polices and practices discourage farmers from switching to organic farming systems? (2) What can be done to improve the marketing of organically grown foods or food produced with resource conserving methods? (3) How could changes in food marketing policies and practices stimulate increased production and better access to domestic and international markets for the food products in (2)?

We urge the subcommittee to support this marketing research program that we have recommended in addition to the sustainable agriculture research coalition's recommendations for $1.2 million to for USDA implementation of the organic foods certification program and $300,000 to fund the national organic standards board.

The recommended research is an indispensable complement to the national effort to encourage the development of organic farming and the adoption of resource conserving crop rotations.

Thank you, Mr. Chairman and members of the subcommittee for your consideration of these recommendations. If we can be of further help to the subcommittee in its deliberations on FY 1992 agricultural research appropriations, please contact us.

MEMBERS OF THE SUSTAINABLE AGRICULTURE RESEARCH COALITION

American Farmland Trust

Center for Rural Affairs

Center for Science in the Public Interest

Consumer Federation of America

Consumers Union

Environmental Defense Fund

Institute for Alternative Agriculture

National Family Farm Coalition

National Farmers Union

Natural Resources Defense Council

National Wildlife Federation

Public Voice for Food and Health Policy

Rodale Institute

Sustainable Agriculture Coalition

Sierra Club Agriculture Committee

PUERTO RICO DEPARTMENT OF SOCIAL SERVICES

STATEMENT OF HON. CARMEN SONIA ZAYAS

The Food Stamp Program (FSP) was not fully implemented in Puerto Rico until 1974; a decade later than in the States. In the mid 70s, a period of high unemployment and sluggish economic growth, the FSP eased the burden of our poor. Most important, during this period, the local nutritional standards improved substantially.

In order to reduce spending, however, Congress approved Public Law 97-35, the Omnibus Budget Reconciliation Act of 1981. This law removed Puerto Rico from the FSP effective July 1, 1982, and established a block grant.

This block grant represented a $90 million reduction from the funds allotted for FY 1981 and 25% reduction in the projected benefits for 1982--300 million dollars less. While federal spending per capita income was also half the national average, the Reagan Administration singled out and excluded Puerto Rico from participation in the food and nutrition program and reduced the funding level as part of its budget cuts.

In less than a year, the Commonwealth had to plan, design, and implement the new Nutrition Assistance Program (NAP) within the fiscal constraints imposed. The Department of Social Services was entrusted with this daunting task. In order to bring costs within the $825 million cap, the Department decided to distribute benefits through the issuance of checks instead of coupons. Furthermore, the Department was forced to restrict eligibility standards and slash benefit levels.

After the cutback, the total number of participating households was reduced from 503, 248 to 433, 987 in 1982; and to 401, 032 in 1985. This represented a reduction of 106, 216 households or 21%. A study conducted by the U.S. Department of Agriculture found that even households with very low incomes had their benefits cut when the block grant was implemented, and that these cuts grew larger after FY 1982 due to the funding freeze imposed.

During fiscal years 1982-86, there was no increase in the amount of funds allotted to NAP. Finally in FY 1987, NAP's funding level was partially adjusted for inflation. From 1987 to 1990, the block grant increased approximately 3% per year:

FY 1987:	$853 million
FY 1988:	$879 million
FY 1989:	$908 million
FY 1990:	$936 million

Still, this limited increase did not respond to the most basic needs of our people. As stated by our Governor, the Hon. Rafael Hernández Colón, "...the needy people of Puerto Rico face the same need for food as the needy people in Guam or New York. Hunger is universal, and it is felt in the same manner here and elsewhere." Despite our efforts to reduce costs--i.e., cash issuance of benefits instead of coupons to reduce costs; stricter eligibility standards, etc.--the serious fiscal limitations have diminished our capacity to assist our needy.

** As a result of the arbitrary reduction in funds, food consumption in Puerto Rico has stagnated in the past decade.

** The per capita food consumption in Puerto Rico is only 59% of the United States level.

** Since Puerto Rico must import most of its food items, the cost of purchasing food is higher. In 1989, the weekly food cost of Puerto Rico was $75.67 as compared to $67.62 in the States. For every $100 spent in the Mainland for food, Puerto Rico spends $112.20.

** Puerto Rico has been excluded from the Thrifty Food Plan, and it is the only jurisdiction where the Consumer Price Index for the cost of purchasing nutritionally adequate food is not taken into account for the adjustment in benefits.

** Puerto Ricans spend around 40% of their per capita income in annual housing costs, yet, due to the restrictions imposed, no deduction for shelter expenses is allowed.

** The maximum rates for allowable net income were drastically reduced in 1982 and have remained the same ever since. Under FSP, the maximum allowable income for a family of four was $708; in 1982 the amount was reduced to $513; it remains the same in 1990. Moreover, the allowed income is substantially less than those in the Mainland and other jurisdictions, such as the U.S. Virgin Islands.

Puerto Rico is the only jurisdiction in the United States that does not qualify for full assistance under the Food Stamp Program. Guam, the Commonwealth of Northern Marianas, and the Virgin Islands all participate fully even though they are not States. Moreover, non-U.S. citizens residing in any of the 50 states receive more nutritional assistance than American citizens residing in Puerto Rico.

Congress must address the existing inequity and restore the full participation in the Food Stamp Program that the American citizens of Puerto Rico lost in 1982. The "Food, Agriculture, Conservation and Trade Act of 1990", Pub.L. 101-624 represents an important step toward this goal of basic justice for all U.S. citizens.

The Department of Social Services urges the Subcommittee to approve the appropriation of $1,013,000,000 for the Puerto Rico Nutrition Assistance Program authorized by the "Food, Agriculture, Conservation and Trade Act of 1990".

In addition, the Department urges Congress to reject the U.S. Department of Agriculture's request that a separate appropriation be set for Puerto Rico. Congress has expressly provided that NAP funding be part of the overall food stamp funding. To do otherwise would make NAP more vulnerable to future attempts by the Administration to reduce funding for the program. Moreover, it would go against Congress' position that the U.S. citizens who reside in the Commonwealth of Puerto Rico should be safeguarded against hunger and treated on an equitable and fair basis with other citizens under U.S. nutritional programs. see Pub.L. 101-624, section 1762(a).

Thank you for your attention and consideration to this urgent and critical matter.

REDFISH UNLIMITED

STATEMENT OF ROY S. O'CONNOR, PRESIDENT

We genuinely appreciate the opportunity to submit written testimony in support of the Regional Aquaculture Centers. I am Roy O'Connor, President of Redfish Unlimited of Palacios, Texas. We are a supplier of redfish fingerlings throughout the southwest and sell market size fish to restaurants and supermarkets in Texas.

I have been involved with the Southern Regional Aquaculture Center Industry Advisory Council for the last two years. Through the information they have supplied me, and the meetings I have attended, it has become more apparent to me just how important these centers are. As an owner of a small aquaculture operation, I am well aware there are many unknowns which are encountered in raising fish or seafood products. A small company cannot afford to do the research necessary to ensure an efficient operation, nor study the various diseases and water quality problems which we all encounter in the operation of a fish farm. The regional aquaculture centers are the real key in providing the link between the various research centers and extension agencies and the individual fish farms. The funding that SRAC has available allows research into important aspects of fish farming such as pond aeration techniques, feed quality enhancement, fish disease control and preventative treatments, techniques for harvesting and grading of fish, improved methods for processing and handling seafood products and many others. This research applies directly to the productivity of our aquaculture industry.

The Southern Regional Aquaculture Center grant's emphasis this year is being directed towards answering very important questions such as water quality parameters, monitoring of seafood quality to ensure that a fresh and healthy product reaches the consumer and establishing computer models for collecting statistical data for more effective and efficient production and market strategies. The studies and publications provided by SRAC and other regional centers allow us, the industry, to concentrate our efforts on more efficient production of a better quality product which we can supply to the consuming public.

We strongly recommend the level of funding for the five regional centers be maintained at $7.5 million per year. We understand that even though this amount was authorized in F.Y. 1990, only $3.75 million, or $750,000 per region, was appropriated. We hope you will give your utmost consideration to authorizing full funding of $7.5 million to be split equally between the five regional aquaculture centers.

The aquaculture industry is a relatively new industry in this country, but through the success of the catfish industry, we can readily see just how important it can become. The regional aquaculture centers provide a necessary link between the industry itself and local research centers. Especially with new species, such as redfish, the support and assistance of these centers is critical.

I appreciate very much the opportunity to offer my comments.

RUTGERS THE STATE UNIVERSITY OF NEW JERSEY

STATEMENT OF DR. FRANCIS L. LAWRENCE, PRESIDENT

Summary

Rutgers, The State University of New Jersey, requests $7.4 million in federal matching funds to continue constructing Phase 1 of a Plant Bioscience complex at the New Jersey Agricultural Experiment Station.

When fully developed, this $75 million, 280,000-square-foot complex will house the Center for Agricultural Molecular Biology and the academic departments of Plant Pathology, Horticulture and Crop Science, Entomology and Plant Bioscience. The building underpins the experiment station's philosophy of integrating the latest technologies with traditional approaches to solve the problems facing modern production agriculture and the environment.

Mr. Chairman:

I am Francis Lawrence, President of Rutgers, the State University of New Jersey, and I am here today to testify on behalf of the United States Department of Agriculture program that provides matching funds for constructing agricultural facilities at American universities. This program continues the great tradition of the federal government assuming an appropriate role in a federal-state-industry-university partnership to support our agricultural economy, a role that has existed since the Morrill Land Grant Act of 1862.

Rutgers now seeks matching funds for construction of a Plant Bioscience complex under this program. During the last three years this Committee has appropriated almost $3.0 million for the planning and program design of the facility, which is currently in the final construction design stage. Ground breaking is scheduled for July 1991. Mr. Chairman, we are extremely grateful for your strong vote of confidence in developing the project thus far.

The sole purpose of this facility is agriculture; all space in the building will be used for teaching, research and public service activities for New Jersey and United States agriculture.

The state and the university have authorized $27 million toward construction of the $37 million first phase of the Plant Bioscience complex. The university has committed an additional $10 million in ancillary facilities, such as greenhouses and containment facilities for genetically engineered plants. We are now in need of the $7.4 million federal matching component, so that the actual construction of the facility can proceed in a timely manner and to ensure that the momentum so far generated for New Jersey agriculture and the New Jersey Agricultural Experiment Station will not be lost.

The programs of the New Jersey Agricultural Experiment Station support the state's $15 billion agriculture and food industry, an industry that is strong and viable, but, like agriculture throughout the United States, faces serious challenges. These challenges result in large part from urbanization and the associated pressures of competition for natural and human resources, the proximity of agriculture to often incompatible neighbors and growing public concern over the impact of intensive agriculture on a fragile ecosystem. Although these are problems common to all agriculture, in New Jersey, the most urbanized state in the nation, we experience them sooner and more intensely. Our responses can serve as examples to others.

If these challenges are not adequately addressed, they will ultimately result in the deterioration, if not the demise, of agriculture in our state. I am certain that this Committee understands the value of maintaining the diversity of the nation's agricultural production systems and the importance of having healthy agricultural programs in each state.

To meet these challenges, the New Jersey Agricultural Experiment Station has taken the lead in developing a strategic master plan called *Vision 21*. Its goal is no less than to achieve premier status for Rutgers and its agricultural experiment station among the nation's land-grant institutions. We cannot afford second best because what's at stake is preserving agricultural production near the nation's largest market; strengthening important food processing and packaging industries; protecting our fragile coastline and the quality of our environment; properly managing our enormous toxic and hazardous waste problem and harnessing new technologies, including biotechnology, to these ends.

Vision 21 is an appropriately aggressive plan. It calls for major capital resources to improve our research and teaching facilities, for a $27 million increase in our annual operating budget and for the establishment of advanced technology centers. To succeed, we need to forge partnerships between public and private sectors, and state and federal funding sources.

The plan has been in place for just over three years, and I can proudly report the following progress showing the clear commitment of our region, our state and our university:

1. The New York/New Jersey Port Authority, in support of our marine industry, has provided $13 million toward a $21 million marine science center.

2. New Jersey voters recently approved a $350 million Jobs, Education, and Competitiveness Bond issue in support of higher education. The bond, passed by the highest vote margin in the history of the state, provides over $40 million in support of the agricultural experiment station.

3. During that same period the New Jersey Commission on Science and Technology provided $8 million in new operating funds and $10 million in capital construction funds in support of four advanced technology centers operating under the umbrella of the New Jersey Agricultural Experiment Station. These are centers in food science, agricultural biotechnology, food technology extension and fisheries technology extension.

4. Rutgers, through its Fund for Distinction, has provided $27 million in support of the capital building program at the experiment station. In addition, it has provided working budget increases of $1.7 million to Cook College and over $8 million in support of start-up costs for new faculty and new academic facilities. The university has also hired six world-class scholars as part of its Excellence Program and located them at the New Jersey Agricultural Experiment Station.

5. New Jersey's food production industry also has begun to fund the station, by providing $1 million in grant funding for our Center for Advanced Food Technology and by generating more than $750,000 in support of the center's annual operating budget through membership fees.

Thus, over $102 million for our capital needs and over $10 million in new operating funds have been generated in support of the agricultural experiment station and its strategic plan, *Vision 21*. By any reasonable measure, these contributions provide the strongest possible evidence of commitment by the university, the state and the region to our land grant mission and responsibilities.

We are grateful to this Committee, through its study and planning grants, for being such an important partner in these efforts. It is now time to build on these efforts by moving to construct the Plant Bioscience complex--the cornerstone of our capital and program plans. This building underpins our philosophy that we must integrate the latest technologies with traditional approaches to solve the problems facing modern production agriculture and the environment.

This $75 million, 280,000-square-foot complex, when fully developed, will allow us to appropriately house the Center for Agricultural Molecular Biology, a high-tech center consisting of sixteen world class scientists and their support staffs under the direction of Dr. Peter Day, a world renowned agricultural biotechnologist and geneticist; it will also allow us to coordinate the center with the academic departments of Plant Pathology, Horticulture and Crop Science, Entomology and Plant Bioscience by housing them together in a single facility.

The building will contain state-of-the-art research laboratories, a research library, undergraduate classrooms and laboratories and attached greenhouses. Associated with the center will be a branch facility in southern New Jersey for biological risk assessment, critically important for testing engineered plants and microorganisms.

With this fully developed complex, we will be able to integrate basic and applied research with extension activities to better ensure that agriculture in the Northeast remains profitable and environmentally sound. It also allows us to provide training for undergraduate and graduate students in plant biology to meet the growing demand for such scientists, who, we anticipate, will be in short supply.

We have $29.6 million in hand toward the construction of the $37 million first phase of the complex. Although we plan eventually to ask the Federal Government for an additional $27 million to match our existing commitments, we request $7.4 million in FY 1992 to complete Phase 1. This is the vital first step toward the achievement of our goal.

Thank you for your consideration. My colleagues and I from the state, the university and the agricultural community would be pleased to respond to your questions.

STATEMENT OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC.

LOW INTEREST LOAN PROGRAM FOR THE RURAL ELECTRIFICATION ADMINISTRATION

The Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA), representing more than 5,000 construction firms, opposes the Department of Agriculture's low interest loan program for the Rural Electrification Administration (REA).

Further, SMACNA opposes the use of low interest federal REA loans to Rural Electric Cooperatives (REC's) which result in funding unfair utility competition with small businesses. Below market pricing, financing and sales in markets traditionally served by small businesses is a direct and harmful result of the federal REA Loan Assistance Program. While a major reform to the REA loan program was approved last year more needs to be accomplished in making REC's accountable.

SMACNA believes that REA should be subsidized only with regard to the energy generation and distribution needs of rural areas. The REA should not be subsidizing unrelated REC business ventures competing with private businesses. Further, the REA should be self financing rather than depending on federal subsidies to survive. However, when federal funds are used by the REA and RECs, safeguards should be attached to the loan funds to prevent unfair competition with small businesses. Due to the REA loan program, the special 501(C)12) tax status of RECs, marketing ability and financial resources, REC's have a government subsidized advantage over private businesses, especially in the heating, ventilating and air conditioning market.

While similar anti-competitive practices by utilities are generally regulated by federal government agencies (Security and Exchange Commission (SEC), Federal Trade Commission (FTC), Department of Energy (DOE)) and state public service commissions, most RECs are unregulated at the state or federal levels. Due to the escalating level of anti-competitive practices by RECs in suburban and urban areas, SMACNA supports continued reform of the REA subsidy program beyond the proposal adopted last year.

HISTORICAL PERSPECTIVE

The REA was established in its permanent form in 1936 to make loans and guarantee loans to expand electrification and telephone service into distant and rural areas. REA was also given the authority to make grants and loans for the purpose of promoting rural economic development and job creation projects. It was not the intent of Congress in 1936 to create the REA as a competitor or a predator of suburban and rural small businesses. The Treasury provides the financing to the REA and the REA loans the funds to REC's at five percent interest, with a maximum amortization period of 35 years. REA also furnishes, without cost to the borrower, regular and frequent business management and technical services. Over the past 15 years the value of REA subsidies has amounted to $50 billion. With 99 percent of all rural residents now receiving electric services and private sector loan sources abundantly available, this program represents an unnecessary and wasteful loan and loan guarantee programs. To worsen the federal deficit the Rural Electrification and Telephone Revolving Fund has been exempted by the REA Act of 1936 as amended, from paying annual interest costs owed the Treasury on loan advances totaling $7.9 billion. It is a luxury expenditure the federal government can not afford and one that unfairly penalizes small business.

The fact that REA reported, in recent years, that only a small fraction of the five percent REA loans approved since 1976 have been used to service truly rural areas emphasizes the outdated nature of the program. To illustrate the extent of the problem, REA borrowers are providing energy system service programs traditionally offered by small businesses in suburban areas near Dallas, Washington, D.C., Atlanta, Minneapolis/St. Paul, New Orleans and St. Louis to name a few. Vacation areas also receive anti-competitive, subsidized service programs from REA borrowers, including Vail and Aspen Colorado, Hilton Head, South Carolina, and Orlando, Florida. The Administration's proposal adopted last year, to cut the loan fund to $200 million for REC's that can not borrow from private sources is a step in the right direction. The proposal would provide 90 percent REA guarantees of power supply loans and 70 percent guarantees of electric distribution loans made by the private sector. This is a fair method to prevent "withdrawal shock" for RECs living on generous REA loans at terms unavailable to small business. A gradual phase-out of the loan and guarantee program should give REA and RECs a reasonable period of time to become efficient businesses, operating under standard business practices and regulations. Once the loan program is fully converted to using private sector loan sources, further restrictions on RECs should be in place.

Unfair competition from public utilities is not new on the Congressional agenda. There has been a number of hearings on the harm to small business by ratepayer subsidized utility programs in recent years. The federal government and many states have since passed laws preventing cross subsidized, below market financing, pricing, service and installation programs by utilities to provide a fair competitive market for small businesses. California, Wisconsin and Iowa were the leaders in passing such law.

To address this issue SMACNA was a co-founder six years ago of the National Alliance for Fair Competition (NAFC) a coalition of more than thirty national and state associations and organizations fighting anti-competitive practices by utilities and RECs at the state level. In the last few years the protest against unfair practices by RECs has reached beyond state capitals to the top of the agendas of numerous trade and labor associations, SMACNA being one of them.

SBA SUPPORTS REFORM

In 1989 the Small Business Administration (SBA) issued a major report entitled, **Competition Between Small Businesses and Rural Electric and Telephone Cooperatives in Non-Utility Business**. According to the SBA report, only seven states have authority to regulate diversification into small business markets or anti-competitive practices by RECs. The SBA also found that "the diversification of cooperatives and regulated utilities into non-utility businesses has significant implications to the competition in the unregulated markets, particularly the effect of this diversification on the ability of certain small businesses to survive.

The list of recent business ventures documented in the SBA study, include non-utility areas such as natural gas, marketing and sales, satellite dishes and equipment, cable TV, appliance sales and services, customer surveillance equipment, 2-way radio, telephone business systems, cellular phones, computer equipment, and heating and air conditioning services. Within these categories of REC operations are hundreds of different products and services for sale and installation.

SBA further reported, "Competition with monopoly utilities in the non-utility market can result in the destruction of small business competitors who do not have the low cost financing, management talents, marketing advantages and special tax treatment." While SMACNA members and other small businesses do not fear tough competition, the new REC entrance into our marketplace have competitive advantages not based upon business or market efficiency but on government subsidies.

SMACNA'S RECOMMENDATIONS FOR REA REFORM

1. Due to the overwhelming need for federal budget reductions, SMACNA urges your support for the Administration's FY92 budget proposal to continue the reduction and phaseout of the overall REA loan subsidies program. The REC network is large and financially strong--it needs to stand on its own with private capital.

2. To remedy the unfair competitive advantages of cooperatives against non-subsidized, tax paying small businesses, Congress should develop and implement major reforms for the entire REA assistance program. These reforms should severely limit the geographic areas receiving REA loans to rural areas in markets not adequately served by other small businesses.

3. To further restrict unfair competition, the REA should immediately request an audit of all cooperative borrowers with non-utility businesses to determine the extent of cross subsidization between utility and non-utility activities. A small business impact statement should also be required of each REA borrower to be reviewed by the General Accounting Office on an annual basis.

4. The FTC should be directed to investigate and issue a report on the anti-competitive practices common in REC marketing, sales, service, installation and advertising efforts. Guidelines for review of the anti-competitive activities of RECs should be recommended to the nation's Governors and the Public Utility Commission in every state where the REA is involved.

5. Congress should amend the tax laws pertaining to the non-utility ventures of RECs to require that the IRS fairly tax unrelated REC business income as it does small business income. Congress received such recommendations from the Comptroller General in 1983 in a report entitled, "**Legislation Needed to Improve Administration of Tax Exemption Provisions For Rural Cooperatives**", but failed to act on them. These tax changes would better recognize the vast changes in electric cooperatives' operations, activities and income sources since the generous REC tax exemption policy was established in 1924.

6. Congress should provide leadership to the states that do not have public service commission authority to regulate rural electric cooperatives. Congress should mandate that public service commission review of REC activities be a requirement before REA assistance or other related REA benefits could flow to a particular state.

CONCLUSION

It is imperitive that Congress continue necessary and important reforms to the REA Loan Program. The SMACNA proposal combined with the Administration proposal provides for substantial budget savings and competitive benefits to the small business community. Limiting unfair competition by REC's will improve the climate for small business in rural areas. By passing additional REA reforms, such as those outlined above, Congress can send an encouraging message to the nation's small business community.

SOCIETY FOR ANIMAL PROTECTIVE LEGISLATION

STATEMENT OF CHRISTINE STEVENS, SECRETARY

The animal welfare organizations listed below support the testimony of the Society for Animal Protective Legislation requesting an appropriation of $20 million for enforcement of the Animal Welfare Act, $500 thousand for enforcement of the Horse Protection Act and an increased allocation of ADC funds for non-lethal research.

With appreciation for your consideration,

Sincerely,

Christine Stevens

Christine Stevens
Secretary

Action 81
Action for Animals' Rights
Adopt-A-Pet (NY)
Alaska Animal Rights Coalition
Albert Schweitzer Council on Animals and the Environment
Allies of Animals (NY)
American Association for Science and Public Policy
American Humane Association
American Society for the Prevention of Cruelty to Animals
Animal Assistance League of Orange County (CA)
Animal Care and Welfare/SPCA (PA)
Animal Protection Institute of America
Animal Rescue League of Pittsburgh (PA)
Animal Rights Coalitions
Animal Rights Forum (VT)
Animal Rights Information Service
Animal Rights Kinship, Inc. (TX)
Animal Rights Mobilization
Animal Welfare League (WI)
Animals' Agenda
Anti-Cruelty Society (IL)
Argus Archives
Association of Veterinarians for Animal Rights
Austin Animal Defense (TX)
Beauty Without Cruelty
Beaver County Humane Society (PA)
Benton-Franklin Humane Society/Society for the Prevention
  of Cruelty to Animals (WA)
Brooke County Animal Welfare League (WV)
Cabarrus Animal Protection Association (NC)
Central Vermont Humane Society, Inc.
Chattahoochee Humane Society (AL)
Citizens to End Animal Suffering and Exploitation
Citizens United for Animals (WI)
Collin County Humane Society (TX)
Colorado University Animal Rights Group
Concerned Citizens for Animals, Inc. (MA)
Connecticut Cetacean Society
Dublin-Laurens County Humane Association (GA)

El Paso County Humane Society (TX)
Elsa Wild Animal Appeal
Erie County Society for the Prevention of Cruelty to Animals (NY)
Farm Animal Reform Movement
Florida Federation of Humane Societies
Franklin County Animal Shelter (ME)
Fund for Animals
Garland Humane Society (TX)
Haven Humane Society (CA)
Hiawatha Humane Society (MN)
Houston Animal Rights Team (TX)
Humane Association of Central New York
Humane Education Network
Humane Society of Avery County (NC)
Humane Society of Belleville (IL)
Humane Society of Cowlitz County (WA)
Humane Society of Crawford County (KS)
Humane Society of Fairfax County (VA)
Humane Society of Harford County (MD)
Humane Society of Hernando County (FL)
Humane Society of Kent County (MD)
Humane Society of Kent County (MI)
Humane Society of Larimar County (CO)
Humane Society of McDowell County (WV)
Humane Society of Nacogdoches (TX)
Humane Society of North Iowa
Humane Society of Port Jervis/Deerpark, Inc. (NY)
Humane Society of Shenandoah County (VA)
Humane Society of South Shore (MA)
Humane Society of the United States
Humane Society of Tippecanoe (IN)
Humane Society of Tucson (AZ)
Humane Society of Ventura County (CA)
Humanitarians of Florida, Inc.
Hunterdon County Society for the Prevention of Cruelty to Animals (NJ)
Interfaith Council for Protection of Animals and Nature
International Wildlife Coalition
Jacksonville Humane Society (FL)
Joplin Humane Society (MO)
Lake County Animal Protection (IL)
Lewis and Clark Humane Society (MT)
Maryland Federation of Humane Organizations
Massachusetts Society for the Prevention of Cruelty to Animals
Mecca Wildlife Task Force (MN)
Medical Research Modernization Committee
Morris Animal Refuge (PA)
New Jersey Animal Rights Alliance
Newton Animal Rescue League (IA)
North Central Ohio Nature Preservation League
North County Society for the Prevention of Cruelty to Animals (NY)
Panhandle Humane Society (NE)
People for Animal Rights (OR)
People for the Ethical Treatment of Animals
Progressive Animal Welfare Society (WA)
Promote Animal Rights - Write for Animals
Quincy Animal League, Inc. (MA)
Riley County Humane Society (KS)

Roanoke County Animal Control (VA)
Rutherford County Humane Society (TN)
Salem County Humane Society (NJ)
Santa Cruz Society for the Prevention of Cruelty to
  Animals (CA)
Sauk Valley Humane Society (IL)
Save-A-Dolphin
Seneca Humane Society, Inc. (NY)
Society for the Prevention of Cruelty to Animals of Anne
  Arundel County
Society for the Prevention of Cruelty to Animals in
  Cattaraugus County (NY)
SOS Animals (NY)
Standish Humane Society (MA)
Susquehanna Society for the Prevention of Cruelty to
  Animals (NY)
United Animal Nations
Vancouver Humane Society and Society for the Prevention of
  Cruelty to Animals (WA)
Vermont Humane Society
Virginia Federation of Humane Societies
Voices for Animals (VA)
Washington County Humane Society (OH)
Washington County Humane Society (WI)
Washington Humane Society (DC)
Wolf Defenders (CA)
Women's SPCA of Pennsylvania

Statement in Support of $20 Million for Enforcement of the Animal Welfare Act, $500 Thousand for Enforcement of the Horse Protection Act and an Increased Allocation of ADC Funds for Non-lethal Research*

The Animal Welfare Act is the chief law for protection of animals in the United States. It must not be undermined by lack of the most basic necessities for enforcement of its minimum standards. We support strong enforcement by USDA to obtain compliance from the many entities it must regulate.

Major new responsibilities have been added to the work of Regulatory Enforcement and Animal Care (REAC) within the Animal and Plant Health Inspection Service in the past year. It is essential that the funding for animal welfare enforcement be increased to a minimum of $20 million.

As we reported last year, a substantial number of dealers' premises were not inspected at all during FY 1989. Inspections of intermediate handlers fell by 63%, from 2,643 in 1988 to only 980 in 1989. A report from the Secretary states: "The number of inspections for 1989 is down because REAC was not fully staffed during most of the year." Noting "a critical shortage of professional investigators" he said existing resources were focused on "complaints and on inspection of licensees and registrants, at the expense of air terminal inspections."

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*Non-lethal research refers to methods such as repellents, chemosterilants, and aversive techniques. We propose a research budget increase from 47% to 60% for non-lethal work.

Lack of funds has prevented proper enforcement of the Animal Welfare Act. After speaking with individuals at each of the sector offices, field staff and headquarters staff to evaluate the current status of the program, we cannot state strongly enough that funds are urgently needed just to enforce the requirements which were on the books last year.

Overburdened Staff

Currently, numerous positions are on hold because of a lack of adequate funds. In some sectors staff are obliged to do a great deal of overtime, while in others overtime is prohibited, leaving work undone. Field people are now wasting 50% to 70% of their time traveling. Adequate funding would permit doubling of the field staff, so they could conduct more, better quality inspections and reduce travel time which accomplishes nothing.

New Duties for REAC:

A) Pet Theft Act

The Pet Theft Act was enacted into law as Sections 28 and 29 of the 1990 Farm bill. The new requirements are intended to allow pet owners to recover their pets from pounds before they are sold to dealers. Under Section 28, REAC should ensure that proper records are kept on each dog or cat by the pounds, the dealers, and the laboratories and that valid certification of the specific source of each animal is provided. There are approximately 3,500 pounds in the United States. Authority to apply for injunctions is contained in Section 29:

> Wherever the Secretary has reason to believe that any dealer, carrier, exhibitor, or intermediate handler is dealing in stolen animals, or is placing the health of any animal in serious danger in violation of this Act or the regulations or standards promulgated thereunder, the Secretary shall notify the Attorney General...

B) Enforcement of Improved Standards for Laboratory Animals and Regulation of Farm Animals Used in Biomedical Research

Final regulations implementing the 1985 amendments to the Animal Welfare Act were published on February 14, 1991. Unfortunately significant parts of these regulations are in a form called "performance standards". As a result inspectors will require much additional time to complete an inspection. Prosecution of violations, likewise, will be an even more labor intensive task for APHIS's Regulatory Enforcement and the Office of General Counsel under this form of regulation.

The inspector must first evaluate the individual plan prepared by the facility to see if the plan meets the requirements of the law and regulations; next the facility must be inspected to determine whether it is adhering to its own plan (in the absence of record-keeping requirements); each individual dog and primate should be carefully observed to assure that they are meeting the performance-based requirements and then the inspector must mark the inspection report form in a comprehensible fashion. Every facility is at liberty to write a different plan both for exercise of dogs and well-being of primates.

APHIS has further expanded its duties, and will begin inspection of farm animals used in biomedical research.

C) Exotic Animal Auctions

APHIS is preparing regulations to cover exotic animal auctions. Headquarters staff estimates that there are 25 such auction sites which must be licensed, requiring announced pre-licensing inspections in addition to unannounced compliance inspections. License applicants are permitted up to 3 pre-licensing inspections to meet APHIS standards.

Drafting Regulations

During the year APHIS plans to draft and finalize regulations on use of farm animals in biomedical research and on auctions of exotic animals.

Prelicensing Inspections

The Animal Welfare Act requires pre-licensing inspections of animal dealers, animal auctions, where animals regulated under the Act are sold, and animal exhibitors.

Reports from the Sector offices indicate that the number of pre-licensing inspections has surged recently. Throughout much of the U.S. these figures have nearly doubled, due in part to the pet industry proposal that pet stores purchase dogs only from licensed dealers. Exposes on network television documenting horrible conditions at puppy mills have attracted much attention. The American public is deeply concerned that APHIS do everything possible to correct this. Applicants whose facilities do not meet Animal Welfare Act standards should not be in business.

Investigation of Complaints

APHIS very properly gives high priority to investigation of complaints about licensees and registrants to ensure that regulated animals are receiving proper care. The number of complaints which APHIS is receiving are increasing too. Complaints in one Sector alone are five times greater than they were the previous year.

Acquisition of Needed Equipment

To accomplish three inspections per facility per year and to carry out its new duties, REAC will need to at least double its field staff. These field personnel would require an automobile and a camera in order to carry out their duties.

Following the reorganization of the Animal Care program, the field personnel now operate on a more independent basis. There is a need for laptop computers for use by all VMO's and ACI's to permit them to maintain records in an efficient manner and to allow transmittal of the information in a timely fashion.

Following is our estimate for the Animal Welfare Act enforcement budget:

Minimum Appropriations Needed to Enforce the Animal Welfare Act

Operating Budget for FY 1989 (less than 1.20 inspections per site were made)	$ 6,197,000
ADDITIONAL COSTS BECAUSE OF ADDITIONAL RESPONSIBILITIES AND AN INCREASED WORKLOAD:	
Additional Unannounced Inspections (1.80 per site, for a total of 3 inspections)	2,300,069
Addition of Assistant Sector Supervisors and Computer Assistants	289,138
Inspection of Carriers and Handlers	265,018
Pet Theft Act	3,200,000
Inspection for Compliance with ISLA & Farm Animals Used in Biomedical Research Regulations	1,078,000
Inspection of Exotic Animal Auctions	11,400
Drafting Regulations	237,362
Increased Prelicensing Inspections	165,423
Investigating Increased Number of Complaints	61,332
Regulatory Enforcement	2,000,000
Acquisition of Needed Equipment	1,199,600
Training	612,000
Benefits, Communications, Travel and Overhead	1,300,000
Inflation	1,132,057
TOTAL	$20,048,399

The Animal Damage Control Program

The Administration proposed a budget decrease of $4,200,000 for the Animal Damage Control program, and we support this proposal because of the extreme cruelty, lack of efficiency, outdated methods and strategies often used by ADC in the field.

However, the Denver Wildlife Research Center (DWRC) is to be commended for its research on non-lethal methods which now comprise 47% of the research budget. This forward-thinking approach should continue and expand. In addition to aversive and repellent methods, a key alternative technology to be pursued is immunocontraception. We propose that 60% of the research budget be directed toward non-lethal projects. This is a prudent, economical, viable, and humane means of planning for the future of wildlife management.

We support the relocation of DWRC to Fort Collins to allow the facility to conduct its alternatives research program as aggressively as possible, and to accelerate the rate at which non-lethal alternative methods are developed for animal damage control. APHIS can continue to facilitate this move with the additional $4,000,000 that was deferred in last year's allocation.

Breakdown of Budget Figures Used in Calculating Minimum Appropriations Needed to Enforce the Animal Welfare Act

Operating Budget for FY 1989

Breakdown of accomplishments within the program are not yet available for FY 1990, therefore this necessitated our using the Budget for FY 1989 as our starting point.

Additional Unannounced Inspections

At the FY 1989 funding level of $6,197,000, APHIS performed an average of less than 1.2 inspections per facility, including reinspections. There needs to be a minimum of 3 inspections per year, so we calculated the cost of doing an additional 1.8 inspections. 1.8 X 8 hour inspection time X 2,851 research sites X $21.25 average hourly salary for a Veterinary Medical Officer (VMO) plus 1.8 X 8 X $16.75 average hourly salary for an Animal Care Inspector (ACI) X 5,919 dealer and exhibitors equals $2,300,069.

Addition of Assistant Sector Supervisors and Computer Assistants

APHIS has advertised and is filling positions for 5 Assistant Sector Supervisors with an annual salary of approximately $50,260 and 2 Computer Assistants with an annual salary of $18,919. Total costs of these staff additions is $289,138.

Inspection of Carriers and Handlers

Inspections of carriers did not receive the attention it needed in FY 1989 and needs to be restored beyond the previous level in FY 1986 of more than 2,500 inspections. This necessitates an increase of at least 2,000 inspections x $16.75 hourly rate for an ACI X 6 hours for an inspection = $201,000. In FY 1989 the 282 handlers received only 209 inspections. 73 did not receive inspections, therefore we calculated 73 X 3 inspections X $16.75 hourly rate for an ACI X 6 hours = $22,009. The rest of the handlers totals 209 X 2 inspections X $16.75 hourly rate for an ACI X 6 hours = $42,009. $42,009 + $22,009 = $64,018 for handlers. Add the total cost for carriers of $201,000 for a total of $265,018.

Pet Theft Act

Prior to passage by Congress, USDA estimated the cost of enforcement to be $3,200,000.

Inspection for Compliance with ISLA and Farm Animals used in Biomedical Research Regulations

Headquarter's staff current estimate for the additional time required during inspections to assure compliance with the requirements for exercise for laboratory dogs, psychological well-being of primates and inspection of farm animals used for biomedical research, is 2 hours per facility for the first inspection and 1 hour for each inspection thereafter. We are convinced that the actual additional time needed will be at least double that proposed by headquarter's staff.

There are approximately 2,400 research facility sites which house dogs, primates and farm animals used in biomedical research and approximately 4,000 dealers and 1,000 exhibitors in these animals. With 3 inspections per year the additional time required per research site would be 8 hours X $21.25 average hourly salary for a VMO X 2,400 research sites =

$408,000. For inspection of dealer and exhibitor facilities the cost would be 8 hours X $16.75 average hourly salary for an ACI X 5,000 dealers = $670,000. The total cost for dealers, exhibitors and research is $1,078,000.

Inspection of Exotic Animal Auctions

To calculate the cost for coverage of exotic animal auctions we took an average of 2 pre-licensing inspections plus 2 unannounced inspections. Either VMO's or ACI's would inspect so we used the average of their salaries, $19.00 per hour, and estimated 6 hours for each inspection, including travel time. Based on these figures, 4 X 25 X $19 X 6 = $11,400 is needed.

Drafting Regulations

To estimate the cost for drafting regulations on farm animals used in biomedical research and on animal auctions, we used the cost for drafting regulations in FY 1989 and FY 1990 which are shown below:

	FY 1989	FY 1990
Headquarters Staff Work	75,908	66,217
Task Force	55,000	50,599
Printing	67,500	157,500
Mailing	600	1,400
TOTAL	$199,008	$275,716

The average of $199,008 and $275,716 yields a cost of $237,362. Task Force figures comprise salaries and travel expenses for 20 VMO's brought in from the field to work for 5 days.

Increased Prelicensing Inspections

1,854 prelicensing inspections were performed in FY 1989. Approximately 3,500 are expected in FY 1992. These applicants are inspected by an ACI with an average salary of $16.75 per hour, multiplied by an estimated 6 hours for each inspection, including travel time. The calculation is as follows: 1,646 X 6 X $16.75 = $165,423.

Investigating Increased Number of Complaints

The total number of complaints received during FY 1989 was 962. Based on conversations with Sector Offices we believe this number will increase to approximately 1500, an increase of 538. Either an ACI or a VMO will investigate complaints depending on facility and location so we used the average salary of $19.00 per hour to perform the calculation: 538 X 6 hours X $19 = $61,332.

Regulatory Enforcement

Regulatory Enforcement was not listed as a line item in last year's budget. It needs greater visibility as the backbone of the Animal Welfare Act. Providing $2,000,000 will assure that cases are dealt with in a timely manner, that they are investigated thoroughly. This would also allow for investigations into key areas such as pet theft or acquisition of animals under false pretenses.

Acquisition of Needed Equipment

As stated in the testimony, the field force needs to increase at least twofold. Therefore our calculations consider the addition of 68 new field personnel who must be equipped for the job. We estimated the cost of a vehicle at $12,000 and a camera at $200 for a total of $12,200 X 68 people equals $829,600.

To equip field staff with laptop computers at $2,500 per computer would cost $340,000. The Sector Offices are in need of computer hardware at a cost of $30,000. Total cost for equipment: $30,000 + $340,000 + $829,600 = $1,199,600.

Training

In FY 1989 the training budget given to Recruitment and Development for use in planning courses was $162,000. In addition to this expense, there is a cost for each participant who attends a class, estimated to be $1,000 per person. Course attendance is approximately 30. This cost includes accommodations, travel for the instructors, and honoraria.

High priority must be given to training in the new requirements for USDA. Regulatory Enforcement personnel did not receive any training in FY 1990, so this is also important. With the requested expansion of field personnel, training will be crucial.

We estimated a need for 15 courses X $1,000 X 30 = $450,000. $450,000 + $162,000 = $612,000.

Benefits, Communications, Travel and Overhead

These expenses include air travel, mileage, and telephone calls. Figures from a couple of the sectors were extrapolated to the entire program.

Inflation

The inflation rate, provided by OMB, was calculated for the figures used from FY 1989 through FY 1991.

SOCIETY FOR NUTRITION EDUCATION

STATEMENT OF DR. NANCY E. SCHWARTZ, PRESIDENT

The Society for Nutrition Education is a professional society whose mission is to link nutrition and education. Many of our members work to deliver nutrition education to low income families. The Society believes federal food assistance provides the seeds for better nutrition. Nutrition education nurtures those seeds like water and fertilizer. A recent *Wall Street Journal* headline aptly defines the need -- **Amid Ghetto, Many More Suffer Eating Wrong Foods.** As President of the Society for Nutrition Education, I am submitting this written testimony in support of adequate funding in fiscal year 1992 for two important nutrition education programs serving low income families, as authorized in the 1990 farm bill.

The Society wants nutrition education to make the difference for more people. SNE asks the Subcommittee on Agriculture, Rural Development and Related Agencies for an inflationary increase of 7% in appropriations for the Expanded Foods and Nutrition Education Program, from the current $60.5 million to $65 million. The National Association of State Universities and Land Grant Colleges makes a similar request for EFNEP. In order for EFNEP funding to have kept pace with inflation and the growing need, it would have to be funded at $100 million today.

To implement another provision in the 1990 Farm Bill, we ask that the Subcommittee earmark $2 million out of the food stamp study money [Section 17 and 18 of the Food Stamp Act of 1977] to conduct a special nutrition education outreach grants program that will link cooperative extension programs to agencies serving low income families. We believe this small investment in a grants program will create model programs that can be duplicated across the country to assure that recipients of food assistance also have access to nutrition education. Low-income families like upper income families want to learn how to eat right to promote their health. Often, they just don't know how or where to find the information.

Time after time, the Expanded Food and Nutrition Education Program (EFNEP) under the Cooperative Extension Service has been shown to effectively help food stamp families extend their benefits to the end of the month and to purchase food that promotes health. Pregnant teens taught by EFNEP have sought medical care earlier and improved their diets, with a potential for great savings in public health care costs. But the program cannot reach all the low income families that could benefit from knowing how to manage resources and choose the right foods for good health. Additional funding is needed for EFNEP.

SNE appreciates the FY 1991 increase your Subcommittee provided EFNEP. Here are some examples of how states creatively used additional funds and collaborated with other community programs to teach nutrition and other life skills.

> **In North Dakota,** nearly half of the EFNEP efforts are targeted to Native Americans living on four reservations. North Dakota Program assistants helped develop a cookbook, *Classy Commodity Cooking,* that provides recipes and ideas for using USDA commodities for nutritious, appealing meals. Requests for copies come from around the country, as the book

is useful, practical, and educational. Due to high incidence of diabetes among Native Americans, the fifth edition of this cookbook was revised to include diabetic exchange lists for meal planning. North Dakota State University dietetics students analyzed recipes and determined exchanges.

In **Mississippi**, EFNEP recruited 500 new families from the Delta area where the incidence of teenage pregnancy, low birthweight babies, and infant mortality are high. EFNEP collaborated with WIC and the Freedom from Hunger Foundation to increase contacts with high risk women. EFNEP educators provided nutrition education; promoted breast feeding and increased use of WIC foods; and encouraged getting frequent prenatal care. After babies were born, EFNEP staff emphasized proper infant nutrition, immunizations and parenting skills. Evaluations reported improvements in nutrition knowledge and diets.

In **Iowa**, 250 children of migrant workers received nutrition education while in daycare as a result of a partnership among EFNEP, Proteus, and local Community Action Agencies. Program materials were bilingual and introduced English into the home. EFNEP and 4-H specialists taught nutrition education and Life Skills training to youth at the Iowa Juvenile Home in Tama County. This training helped these juveniles make a good transition into an independent living environment.

In **Wisconsin**, EFNEP collaborated with the Great Lakes Indians Intertribal Council to provide nutrition education for young girls on the Red Cliff Indian Reservation. The program incorporated Native American dance to increase energy expenditure to control weight.

In **New York City**'s Harlem, parents and children learned to read using food and nutrition lessons. This project was a joint effort between EFNEP and the Cornell English Department.

The Society for Nutrition Education asks you to make another added investment this year in EFNEP and to set aside food stamp study money for nutrition education outreach. EFNEP and nutrition education can make the difference --

- in whether a family's food stamps last through the month;
- in whether food stamp coupons buy candy, soft drinks, and chips or buy more nutritious foods like milk, fruits, vegetables, and meats;
- in whether families use their commodities wisely or have to discard them not knowing how to prepare them;
- in whether food-related pests and rodents are controlled or food is destroyed;
- in whether a family plants a garden and preserves the harvest or goes without vegetables;
- in whether an infant is breast or bottle fed or the infant receives soft drinks;
- in whether a pregnant woman increases her consumption of milk, fruits, and vegetables and decreases her consumption of alcohol, caffeine, and cigarettes;
- in whether an unborn infant progresses to full-term or is born prematurely; and
- in whether a single father can manage a household and keep his children at home.

SOCIETY FOR NUTRITION EDUCATION AND THE NATIONAL ASSOCIATION OF STATE N.E.T. COORDINATORS

STATEMENT OF GORDON R. ODERMANN, NEW YORK STATE NUTRITION COORDINATOR

The Society for Nutrition Education and the National Association of State Nutrition Education and Training Program Coordinators (NASNET) appreciate the leadership that this Committee has given to nutrition programs over the years and your recognition that nutrition education is a vital component of the Child Nutrition Programs. These two professional organizations together seek an increase in the NET Program appropriation equal to $20,000,000 for FY 1992, the authorized level in PL 101-147. These additional funds will ultimately result in a cost savings to this country, for we know that health care costs will decrease as healthy food habits are established.

A 1985 evaluation of the effectiveness of nutrition education, conducted by the University of Minnesota for the National Dairy Council and published by the Society for Nutrition Education, found than nutrition education 1) markedly increases nutrition knowledge, 2) fosters positive attitudes toward eating nutritiously, and 3) results in constructive changes in participants' patterns of food consumption. This study confirmed what the NET program has demonstrated nationwide -- nutrition education works!

The costs to operate and maintain NET programs throughout the country have steadily risen. In 1989, recognizing that NET could not continue to operate at its 1982 appropriations level, Congress increased NET's reauthorization funding level by $5 million annually in PL 101-147. For FY 1991, Congress appropriated half of that increase and provided NET with an additional $2,500,000. SNE and NASNET are grateful for that increase but want the Subcommittee to understand the need for annual increases not only to keep pace with inflation but also to recover lost ground during 10 years without funding increases.

With the FY 1991 increase this past year, states such as New York, California, New Jersey, New Mexico, Maryland, Delaware, North Dakota and the territory of Puerto Rico have reported:

- incorporation of nutrition education as part of Comprehensive School Health Education programs;
- provision of mini-grants to pre-school programs;
- development and dissemination of nutrition handbooks;
- marketing of school food services through promotional materials;
- expansion of "train the trainer" programs;
- initiation of needs assessment instrumentation;
- revision of workshop materials to reflect the Dietary Guidelines for Americans;
- extended services to Family Day Care providers;
- acquisition of current, reliable nutrition resources;
- development and reprinting of curriculum materials.

President Bush's proposed FY 1992 budget of $5,000,000 for NET would eliminate the FY 1991 increase of $2,500,000 and subsequently prohibit or severely restrict:

- continuation or initiation of needs assessments;

- development of new training materials;
- printing of recently developed curricula and resource guides;
- updating of nutrition resource libraries and media centers;
- dissemination of services, programs and materials developed with the FY 1991 increase.

The NET program is equipped to educate our children, parents, teachers, and food service personnel about nutrition. NET is a family nutrition education program; it fills the gap between WIC and Meals on Wheels. NET funds have been used to produce specialized nutrition materials and educational programs for handicapped individuals, pregnant teens, student athletes and coaches. In addition, it has provided training to teachers, children, parents and food service personnel in child care programs through the twelfth grade. NET programs throughout the country have achieved remarkably impressive accomplishments despite limited funding such as the development of:

- the highly-acclaimed California "Choose Well -- Be Well" nutrition education curriculum guide now used world-wide;
- the Emmy Award winning television series "High Feather" developed in New York State;
- the Pennsylvania School Breakfast Campaign especially targeting "high-risk" youth, and destined to become a national model.

These successes notwithstanding, there is still much to be done. Because of the decreased funding in recent years, we have been unable to reach large segments of the school population. The program now reaches approximately 85,000 teachers, 67,000 food service personnel, and 2.2 million students as compared to the 211,000 teachers, 103,000 food service personnel, and 5.6 million students reached with the original funding level.

The public's interest and concern regarding the nutritional quality of school lunches cannot be overlooked. Now, more than ever, our schools need the NET program to provide leadership and guidance in the form of nutrition education and training to school food service personnel. This training needs to be expanded so that all children can have access to high quality, nutritious meals.

As the responsibility for meal preparation for the whole family begins to fall more often on "latchkey kids" and as larger number of children purchase meals and snacks away from home, the need for schools to teach nutrition to children grows. Only through the combination of nutritious meals and effective nutrition education can school children today learn good eating habits to prevent the diet-related diseases of tomorrow. NET, the vital, cost-effective health promotion and disease prevention program, needs an increase in funds for FY 1992 to bring it close to the authorized level of $20,000,000 for FY 1992.

SOIL AND WATER CONSERVATION SOCIETY

STATEMENT OF NORMAN A. BERG, WASHINGTON, DC, REPRESENTATIVE

As suggested in your letter to the Executive Vice President of the Soil and Water Conservation Society we hereby submit a brief statement regarding our fiscal year 1992 recommendations for soil and water conservation activities of several agencies in the U.S.Department of Agriculture.The attached table compares current year estimates,the Administration's proposals,and the Society's funding levels thought to be needed in fiscal year 1992 for full implementation of their several responsibilities.The 1985 and 1990 Farm Bills have greatly accelerated the workloads in the USDA field offices, especially related to the Conservation Titles of these laws.

The Society recognizes that the delivery of these program services should be shared by nonfederal governments and the private sector.Their contributions to soil,water,and related conservation programs is increasing.However,a major role for adequate implementation of programs,must continue to be performed by the federal government.The record of your Committee over the past several decades to fund research,extension,cost-share,credit,and technical assistance for the agencies doing soil and water conservation work has been excellent.We have pointed out in prior testimony that only one cent of each federal dollar is targeted toward natural resource management initiatives.As a percentage of the annual federal budget,now exceeding $1.5 trillion,spending to protect natural resources has decreased by over one-third in the past quarter century.

For USDA conservation programs alone,the Department estimates that at least an additional 4,000 staff years are needed to carry out the minimum requirements of the Food,Agriculture, Conservation,and Trade Act of 1990.The Conservation Title XIV of the 1990 Farm Bill added to the 1985 Conservation Title XII provisions.The statistics evolving from field work that relate to Conservation Compliance,Swampbuster,Sodbuster,and Conservation Reserve contracts demonstrates,beyond doubt,that the new demands for services has greatly accelerated.

This is over and above the commitments to landusers,made by Conservation Districts,that are considered as the traditional type of voluntary soil and water conservation programs.

The 1990 Farm Bill strengthened several prior provisions in the following ways.

Title XIV-Conservation:
-Subtitle A-Highly Erodible Land Conservation,
-Subtitle B-Wetland Conservation,
-Subtitle C-Agricultural Resources Conservation Program,
-Subtitle D-Other Conservation Measures,
-Subtitle E-Watershed Protection and Flood Protection Act,
-Chapter 2-Farmland Protection,
-Subtitle F Administration of Environmental Programs,
-Subtitle G-Water Quality Research,Education,Coordination,
-Subtitle H-Pesticides.

-Title XII-State and Private Forestry:
-Subtitle A-Cooperative Forestry Assistance Act of 1978,
-Subtitle B-Research and Education,
-Subtitle C-America the Beautiful

The Research,Credit,Rural Development,Global Climate Change, and the Commodity Titles also have significant conservation provisions.

The Department's National Conservation Program,mandated by the Soil and Water Resource Conservation Act(RCA)of 1977, guides policy for the conservation activities of eight USDA agencies. In 1988,USDA updated the 1982-87 National Conservation Program(NCP)to provide guidance and priorities for the 1988-1997 period. The current NCP,when updated to consider the impact of the 1990 Farm Bill on the work of the agencies,should also indicate the funding required.

We appreciate the opportunity to submit this prepared statement to your subcommittee for review and inclusion in the written record. Our Society is prepared to assist you in any way appropriate as you carry out your duties.

Soil and Water Conservation Society(SWCS)
Fiscal Year 1992 Funding Recommendations for U.S.D.A.
Soil and Water Conservation Activities

(In millions of dollars)

U.S.D.A. Agency Program	FY'91 Enacted Funds	FY'92 Administration Proposals	FY'92 SWCS's Recommendation
SCS			
Tech.Ass't.	$428.3	$502.3	$690.8 (1)
Soil Survey	69.8	72.6	75.0
Snow Survey	5.6	5.7	6.0
Pl.Mat.Ctr.	7.8	8.1	8.2
CO Subtotal	509.8	588.7	780.0
River Basins	12.8	11.0	13.0
Watershed Plg.	9.2	7.3	14.0 (2)
Watershed Op.	185.7	153.0	250.0 (3)
GPCP	24.6	25.3	40.0 (4)
R.C.& D.	29.9	23.4	40.0 (5)
Staff years	13,678(est.)	14,545(est.)	18,545(est.)
Total SCS	771.8	808.7	1,137.0
RAMP	(12.0)	(3.0)	(20.0)
ASCS			
Agricultural Resources Conservation Program			
Cons.Res.	1,314.9	1,642.8	1,642.8 (6)
Wetlands Reserve	000.0	124.4	124.4 (7)
Environmental Easements	000.0	000.0	10.0 (8)
Water Quality Protection	000.0	000.0	50.0 (9)
ARC Subtotal	1,314.9	1,772.00	1,827.20

	FY'91 Enacted	FY'92 Admin.Proposals	FY'92 SWCS Recommendation
ACP	190.2	180.0	215.0
FIP	12.4	12.4	25.0
Water Bank	13.6	11.4	25.0
Colo.Salinity	14.8	14.8	15.0
ARS			
Soil & Water Cons.Research	83.4	95.4	95.4
CSRS			
Hatch Act	162.3	168.3	165.0
McIntire-Stennis(Frsty)	17.8	13.0	20.0
Rangeland Res.	0.5	0.0	1.0
Sustainable Agr.Research and Education	6.6	4.5	40.0
Extension Service			
Gen.Form.Funds	252.6	262.1	265.0
Earmarked Programs			
Water Quality	10.4	15.5	16.0
Pesticide Impact Assessments	3.2	3.6	4.0
Pesticide Appl. Training	0.0	0.0	10.0
Integrated Pest Management	0.0	10.0	12.0
1990 Farm Bill		0.0	50.0 (10)
Renewable Res.Ext.	2.8	0.0	15.0
Farmer's Home Admin.			
Rural Fire Pr.	3.5	0.0	3.5
Soil & Water Cons. Loans-Direct	5.5	0.0	14.0
Soil & Water Cons. Loans-Guaranteed	1.5	0.0	2.0
R.C.& D.Loans	.6	0.0	1.2
W.S.Protection & Flood Prevention	4.0	0.0	8.0
Farms for the Future		0.0	7.0

EXPLANATORY NOTES:

(1) The Conservation Technical Assistance appropriation for FY'92 should provide for an additional 4,000 staff years to service the field office work of the Soil Conservation Service for all programs, including 1985 and 1990 Farm Bill Conservation Provisions.

-The estimated SCS Ceiling Staff Years for FY'91 is 13,678.

-The estimated SCS Ceiling Staff Years for FY'92 is 14,545.

(2) Watershed Planning: This is the amount needed to service current applications and contracts.

(3) Watershed Operations: This is the amount needed to meet current needs in PL-534 and PL-566 activities.

(4) GPCP: This is the amount authorized in the 1990 Farm Bill.

(5) RC&D's: Increase in funds needed to support the new RC&D projects authorized in the 1990 Farm Bill.

(6) The Conservation Reserve Program funds recommended by the Administration would seem to be adequate at this time.

(7) The Wetland Reserve Program funds recommended for FY'92 by the Administration would seem to be adequate.

(8) Environmental Easements: These funds would be used for a start-up of a new program authorized by he 1990 Farm Bill.

(9) Water Quality Protection: These funds would be used as a start-up for new water quality incentives directed at non-point source problems as authorized by the 1990 Farm Bill.

(10) The Cooperative Extension Service needs additional funds to support several new provisions of the 1990 Farm Bill. The Conservation Title XIV, to be fully implemented, does require acceleration of information and education work. Extension activities related to Integrated Management Systems, Sustainable Agriculture Technology Development and Transfer, the Best Utilization of Biological Applications, and Rural Development have created the demand for additional services.

SOUTHERN ILLINOIS UNIVERSITY AT CARBONDALE

STATEMENT OF DR. JOHN YOPP, ASSOCIATE VICE PRESIDENT FOR ACADEMIC AFFAIRS AND RESEARCH

I am pleased to have this opportunity to discuss with you the proposed FY1991 and FY1992 programs of the Illinois Groundwater Consortium which was established to study the impact of agricultural chemicals on groundwater in Illinois.

The state of Illinois is rich in many resources. It has long enjoyed a reputation as a scientifically progressive state, especially in the areas of agricultural research and productivity. Its farmers have consistently placed it among the nation's leading producers of soybeans, corn and other grain crops. It is a leading exporter of these commodities at a time in our nation's history when a net export of any product is particularly welcome.

The richness of Illinois is not, however, limited to agricultural productivity. This state also possesses a wealth of scientific talent in the areas of agricultural innovations, environmental concerns and natural resources, that is the envy of other states and nations. Illinois can, and rightfully should, provide the scientfic talent to research the critical interaction between agricultural activities and a most important natural resource and essential constituent of the environment--Groundwater. The Consortium partners are the locus of this expertise.

The Illinois Groundwater Consortium grew out of an FY1990 appropriation of $500,000, provided by this Subcommittee, to Southern Illinois University at Carbondale (SIUC). As a result of this appropriation, SIUC joined forces with the Illinois State Geological Survey, Illinois State Water Survey, University of Illinois Cooperative Extension Service and the University of Illinois Agricultural Experiment Station to effectively work together toward providing a scientifically valid basis upon which meaningful agricultural chemical management and regulatory decisions can be made. Information on the occurrence, transport, and fate of agricultural chemicals in representative hydrogeological settings in Illinois will best be acquired through a joint effort of experts from the above nationally-regarded research entities in the State of Illinois.

We are currently involved in the acquisition and processing of information gained from scientific investigations conducted over the past year by consortium scientists. This information, supported by the initial appropriation of $500,000 and by the FY91 appropriation of $600,000, will be disseminated to pertinent constituencies through incorporation into course materials, extension service activities and publications. In addition, this information will also be available to researchers, agency personnel, and the public in other states to help them in addressing issues pertaining to agriculturally related impacts on groundwater quality.

Status of the Current Program

The Advisory Committee of the Illinois Groundwater Consortium, consisting of institutional representatives from each of the Consortium members and the Consortium Director (Dr. Victoria Molfese of Southern Illinois University at Carbondale), is overseeing the progress of six research projects currently receiving support from Consortium funds. In addition, the Advisory Committee is involved in the solicitation and review of proposals for new projects that will be supported with FY1991 funds.

A proposal describing the objectives of the first year proposals was submitted to the U.S. Department of Agriculture in March of 1990. The Consortium members continue to work closely with the Department of Agriculture for the satisfaction of mutual goals.

(1) First Year Projects. Six research projects are currently supported though the FY1990 funds provided to the Consortium. The title of each project and the names and institutional affiliation of principal investigators are included in Appendix A. These six projects, which are planned for a 16 to 24 month period, are currently in progress and are focusing on issues pertaining to: assessment of the effects of various agricultural practices on the fate and transport of chemicals; assessment of existing groundwater quality; and evaluations of contributing agricultural practices.

(2) Second Year Projects. Five of the six current research projects will receive supplemental funding from the $600,000 received in FY1991 to enable their principal investigators to expand some of the original objectives of their projects. The original objectives did not include the expansions now being proposed because of FY1990 budget limitations. The expanded objectives will be accomplished within the time period originally approved for each of these projects. The projects and their requested extension funds are listed in Appendix B.

The major portion of the FY1991 funds will be used to support new projects. These new projects will be selected on the basis of peer reviewed evaluations of 16 proposals which were submitted in March, 1991, in response to a request for proposals mailed to consortium institutions. Eleven of the proposals received are seeking to address problems concerning the effects of current agricultural practices on the fate and transport of agricultural chemicals and assessments of existing groundwater quality. These two topic areas were identified in the Research Planning Conference (described below) as important national and state needs. All proposals will be reviewed during April and May. Those proposals which receive the highest peer-reviewed evaluations will be ranked by the Illinois Groundwater Consortium Advisory Committee according to research priorities and funding recommendations will come from that committee.

(3) Research Planning Conference. The first Research Planning Conference of the Illinois Groundwater Consortium was held in Springfield, Illinois on April 2, 1991. The conference was attended by 60 people and was enthusiastically received. The inaugural keynote address was made by U.S. Representative Richard Durbin. In addition, national and state perspectives on groundwater legislation, informational needs, and research status were made by representatives from federal agencies (i.e., U.S. Department of Agriculture, U.S. Environmental Protection Agency and U.S. Geological Survey) and state agencies (i.e., Illinois Environmental Protection Agency, Illinois Department of Agriculture, Illinois Department of Public Health). Presentations were also made by the principal investigators of the six projects currently supported by Consortium funds. The presentations on the research projects will be published as proceedings and distributed to attenders of the conference and others on a mailing list of people interested in groundwater issues. A copy of the program is included in Appendix C.

Long-Term Objectives. In the next few years, it is hoped that the Subcommittee will recommend continued funding so that more of the many projects identified by each member institution of the consortium can be pursued. A broad based research program has been developed which includes research on:

(1) Assessment of past and continuing agricultural practices on the fate and transport of chemicals;
(2) Assessment of existing groundwater quality;
(3) Evaluation of past and continuing agricultural practices contributing to groundwater contamination;
(4) Regulatory and incentive policies;
(5) Groundwater protection strategies; and
(6) Education and extension service activities

The Consortium is requesting a FY92 funding level of $1.25 million. Additional funds will enable the Consortium to more adequately focus on issues of current and historical importance to groundwater quality in Illinois (see Appendix D). Funding for the third-year will be channeled to projects falling under the priority areas listed above. We will continue to use 95% of the funds provided to the Consortium for project activities and the annual Research Planning Conference. Only five percent of the funds will be used for necessary administrative costs. Prioritization of funding objectives will be accomplished through recommendations of the external reviewers, discussions at the Research Planning Conferences and decisions of the Advisory Committee. It is the Advisory Committee's belief that the highest research priorities will include research in areas of greatest need but for which there is currently little or no state/federal funding.

On behalf of Southern Illinois University at Carbondale and the Illinois Groundwater Consortium, I wish to thank the Subcommittee for the opportunity to submit this testimony to you. We truly believe that we can meaningfully contribute to the currently deficient body of knowledge on the impact of agricultural chemicals on groundwater, particularly in the Midwest, and we hope you will be able to allow us to continue our work during the second year of funding.

APPENDIX A

ILLINOIS GROUNDWATER CONSORTIUM
First-Year Projects

Listed below are the projects funded in the first year of the Illinois Groundwater Consortium activities. These projects are listed within the long-term objectives identified by the Consortium Advisory Committee as high priority for research activities within the State.

Objective: Assessment of Agriculture Practice Effects on Fate and Transport of Chemicals

1. The Relation Between Material Properties of Glacial Till and the Bulk Saturated Hydraulic Conductivity
2. Spatial and Temporal Variability of Herbicide Retention in Soil During the Growing Season
3. A Study of Facilitated Transport of Agricultural Chemicals by Colloidal Materials
4. Groundwater Contributions to Atrazin Loadings in Streams

Objective: Assessment of Existing Groundwater Quality

1. Agricultural Chemical Contamination of Shallow-Bored and Dug Wells

Objective: Evaluation of Contributing Agricultural Practices

1. Historical Assessment of Crop Production and Chemical Use on Economically Viable Farms in Illinois

Objective: Use of Existing Mechanisms for Technology Transfer and Education

1. First Research Planning Conference of the Illinois Groundwater Consortium

GROUNDWATER PROJECT EXTENSIONS

APPENDIX B

Dr. She-kong Chong, Dr. George Kapusta and Dr. Brian Klubek, Department of Plant and Soil Science, Southern Illinois University at Carbondale, "Spatial and Temporal Variability of Herbicide Retention in Soil During the Growing Season" $49,000

Mr. Dennis P. McKenna, Dr. James B. Risatti, Dr. William R. Roy, and Mr. Ed Mehnert, Illinois State Geological Survey "Groundwater Contributions to Atrazin Loadings in Streams" $26,953

Dr. Bill T. Ray, Department of Civil Engineering and Mechanics, Dr. Joe Davis, Department of Chemistry and Biochemistry, and Dr. Bruce A. DeVantier, Department of Civil Engineering and Mechanics, Southern Illinois University at Carbondale, "A Study of Facilitated Transport of Agricultural Chemicals by Colloidal Materials" $37,489

Dr. John Shafer, Ms. Susan Schock, Mr. Kenneth J. Hlinka, Mr. Steve Wilson and Ms. Katie Panszak, Hydrology Division, Illinois State Water Survey, "Agricultural Chemical Contamination of Shallow-Bored and Dug Wells" $45,600

Dr. Steven Esling, Department of Geology, Southern Illinois University at Carbondale, "The Relation Between Material Properties of Glacial Till and the Bulk Saturated Hydraulic Conductivity" $20,608

APPENDIX C

Illinois Groundwater Consortium
Agenda
Ballroom A/B, Ramada Renaissance Hotel
Springfield, Illinois

Tuesday, April 2, 1991

8:00 a.m. Continental Breakfast and Registration

8:30 a.m. Plenary Session: **ILLINOIS GROUNDWATER CONSORTIUM--AN OVERVIEW**

Moderators: Dr. John H. Yopp and Dr. Benjamin A. Shepherd, Southern Illinois University at Carbondale

Keynote Address: U.S. Representative Richard Durbin

9:15 a.m. *Break*

9:45 a.m. Panel Discussion: **NATIONAL PERSPECTIVE ON GROUNDWATER**

Moderator: Dr. John Yopp, Southern Illinois University at Carbondale

Agencies: U.S. Department of Agriculture: Dr. Richard Amerman

U.S. Environmental Protection Agency: Mr. John Ward

U.S. Geological Survey: Dr. Michael R. Burkart

11:45 a.m. *Luncheon*

1:00 p.m. Panel Discussion: **STATE PERSPECTIVE ON GROUNDWATER**

Moderator: Mr. Paul Du Montelle, Illinois State Water Survey

Agencies: Illinois Environmental Protection Agency: Mr. Rick Cobb

Illinois Department of Agriculture: Ms. Rebecca Doyle

Illinois Department of Public Health: Mr. David Antonacci

2:30 p.m. *Break*

2:45 p.m. **Groundwater Consortium Projects - Year 1**

Moderator: Dr. Victoria J. Molfese, Southern Illinois University at Carbondale

Principal Investigators: Overview of their projects

Dr. Robert H. Hornbaker and Dr. David C. White, Department of Agricultural Economics, University of Illinois, "Historical Assessment of Crop Production and Chemical Use on Economically Viable Farms in Illinois"

Dr. She-kong Chong, Dr. George Kapusta and Dr. Brian Klubek, Department of Plant and Soil Science, Southern Illinois University at Carbondale, "Spatial and Temporal Variability of Herbicide Retention in Soil During the Growing Season"

Mr. Dennis P. McKenna, Dr. James B. Risatti, Dr. William R. Roy, and Mr. Ed Mehnert, Illinois State Geological Survey "Groundwater Contributions to Atrazin Loadings in Streams"

Dr. Bill T. Ray, Department of Civil Engineering and Mechanics, Dr. Joe Davis, Department of Chemistry and Biochemistry, and Dr. Bruce A. DeVantier, Department of Civil Engineering and Mechanics, Southern Illinois University at Carbondale, "A Study of Facilitated Transport of Agricultural Chemicals by Colloidal Materials"

Dr. John Shafer, Ms. Susan Schock, Mr. Kenneth J. Hlinka, Mr. Steve Wilson and Ms. Katie Panszak, Hydrology Division, Illinois State Water Survey, "Agricultural Chemical Contamination of Shallow-Bored and Dug Wells"

Dr. Steven Esling, Department of Geology, Southern Illinois University at Carbondale, "The Relation Between Material Properties of Glacial Till and the Bulk Saturated Hydraulic Conductivity"

4:45 p.m. **Closing Session and Questions**

Moderator: Dr. Benjamin Jones, University of Illinois Agricultural Experiment Station

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APPENDIX D

ILLINOIS GROUNDWATER CONSORTIUM

Tentative Projects and Funding Levels for Program Year 3

Listed below are projects within the long-term objectives identified by the Illinois Groundwater Consortium Advisory Committee. These projects represent areas of highest priority needs within the State of Illinois and areas of staff expertise of the Consortium members. A request for proposals will be issued, depending on the availability of funding for the third year, with these high priority needs identified. Based on the quality of the proposals received, we anticipate that projects would be funded so that these needs are addressed. Cost estimates are preliminary.

1. **Objective: Studies of existing and past agricultural and agrichemical practices - $187,500**

   - Concentration of pesticides over time - studies of the effectiveness of monitoring programs.

2. **Objective: Assessment of Agriculture Practice Effects On Fate and Transport of Chemicals - $312,500**

   - Groundwater flow in the saturated zone of surficial unconsolidated deposits.
   - Movement and chemical transformation of ultratrace mineral elements in groundwater.
   - Effects of groundwater sample collection protocols on sample representation and integrity.
   - Refinement of laboratory analytical procedures.

3. **Objective: Assessment of Existing Groundwater Quality - $250,000**

   - The effects of back-syphoning fertilizer-rich irrigation water into irrigation wells.
   - Measurements of absorption of specific chemicals using fate and transport model.
   - Systematic microbial studies.

- Comparisons of predictions versus actual results (testing of theoretical models).
- Evaluation of natural abundance 15N value methodology to identify and quantify sources of nitrate in rural, private drinking water wells in Illinois.
- Baseline shallow groundwater quality in varying hydrogeologic settings in rural areas.
- Effects of application of lawn/garden chemicals on shallow groundwater quality in urban areas.
- Indication of agricultural chemical contamination of deep, confined groundwater systems.
- Role of preferential groundwater flow paths in contamination of groundwater systems by agricultural chemicals.
- Field-scale to regional spatial variations in agricultural chemical concentrations in shallow groundwater.
- Small-scale temporal variation in agricultural chemical leaching to saturated groundwater.
- Long-term evolution of agricultural chemical concentrations in shallow groundwater.
- Microclimatic/meteorological influences on agricultural chemical leaching to saturated groundwater.

4. Objective: Evaluation of Agricultural Practices Contributing to Groundwater Contamination - $250,000

- Herbicide movement in soils under no-till and reduced-till treatments.
- Influence of farm practices and farm businesses on water quality in Illinois - a survey and database using farm management records to obtain details for the state as a whole.
- Programs focusing on chemigation and fertigation practices and results.
- Relational database integrating all aspects of agricultural chemical product information, on-farm usage, physical environment, water quality analyses, etc.
- Geographic information system application to interpretation and presentation of spatially-oriented data.

5. Objective: Groundwater Protection Strategies - $125,000

- Buried treasure: 50 ways to protect groundwater.

6. Objective: Use of Existing Mechanisms for Technology Transfer and Education - $125,000

- Second Research Planning Conference of the Illinois Groundwater Consortium.
- Development of soil conservation technical guides incorporating newest information.

SOUTHERN REGIONAL AQUACULTURE CENTER

STATEMENT OF DR. C.G. SHEPHERD, DIRECTOR

Thank you, Mr. Chairman and Members of the Subcommittee for the opportunity to offer testimony on behalf of the five Regional Aquaculture Centers. The support this Subcommittee and other members of Congress provide for these important aquaculture programs has been extremely beneficial to the U.S. aquaculture industry and is genuinely appreciated.

Title XIV of the Agriculture and Food Act of 1980 and the Food Security Act of 1985 authorized establishment of aquacultural research, development, and demonstration centers in the United States (Subtitle L, Sec. 1475[d]). The designated regions are Tropical/Subtropical, Western, Southern, North Central and Northeastern. These Centers administer cooperative regional and national aquaculture research and extension educational programs to enhance viable and profitable commercial aquaculture production in the United States for the benefit of producers, consumers, and the American economy. These new regional programs complement and strengthen existing aquaculture programs of colleges and universities, State Departments of Agriculture, and federal facilities. User inputs into development of the Center programs are assured since industry representatives participate in the decision-making processes. Similarly, broad-based technical expertise is provided by research and extension scientists serving on committees for each project developed.

The authorized level of funding for the Regional Aquaculture Centers was $7.5 million annually. The FY 91 appropriation was $3.75 million divided equally among the five Centers. We are requesting your support for FY 92 funding for these existing Centers at the full authorized level of $7.5 million.

A trade deficit exceeding several billion dollars for fishery products continues to exist in the United States. Aquaculture is one of the most rapidly growing segments of U.S. agriculture with 1990 production valued at more than one-half billion dollars. U.S. per capita consumption of seafood continues to increase each year and was 15.9 pounds in 1989, a five percent increase over 1988 consumption and 0.2 pounds greater than the record set in 1987. This year the world's largest fast-food restaurant chain is launching a campaign to test a new catfish sandwich in more than 200 of their southern restaurant markets.

Most U.S. domestic aquaculture is a relatively young industry with good potential for further expansion. Catfish production represents approximately 50% of U.S. domestic aquaculture. In 1990, catfish producer revenues totaled $323 million, up 20% from 1989. Currently, approximately 162,000 acres in 17 states are devoted to catfish production with an additional 8,600 acres under construction. There is increased interest in expanding acreages for other species as well. However, there are many issues and problems facing aquaculture that must be addressed before the full potential for profitable production can be attained.

The states and territories represented by the Southern Regional Aquaculture Center are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, U.S. Virgin Islands and Virginia.

The following is a brief progress report of programs for the Southern Region:

1. Analysis of Regional and National Markets for Aquacultural Products Produced for Food in the Southern Region. This project developed information concerning markets for farm-raised catfish and crawfish, measured effectiveness of generic advertising of catfish, and assessed market potential for catfish and crawfish. A household survey revealed that catfish is now being consumed in significant quantities in all regions of the U.S. and by consumers in nearly all demographic categories. A surprisingly high number of restaurants and supermarkets across the U.S. offer catfish in their sales. Analyses of the data collected from these surveys suggest much potential exists for market expansion, particularly in certain regions of the U.S. and these need to be specifically identified. Although the catfish industry's generic advertising and promotional program is relatively new, analysis shows that the program has had a significant impact and should be continue at the highest level feasible.

2. Preparation of Southern Regional Aquaculture Publications. Scientists from all states and territories within the Southern Region cooperated to produce over 55 fact sheets and 11 videos providing production information on more than 10 species of fish and shellfish. Information ranging from site selection to processing and marketing is included. From the prospective aquaculturist to the experienced, this information has been acclaimed as the best available anywhere. Extension specialists nationwide are continually providing copies of these publications to requestors. In addition, the National Agricultural Library/Aquaculture Information Center, has distributed more

than 10,000 copies of these publications to cooperating institutions and individuals.

3. Performance of Aeration Systems for Channel Catfish, Crawfish, and Rainbow Trout Production. A water circulator was developed to provide uniform water quality in channel catfish ponds. Operation of the water circulator in ponds during daytime reduced the amount of nighttime aeration required by about 50%. Several companies are considering the production and marketing of this device. Use of paddle wheel aerators in crawfish ponds improved water circulation and water quality, and increased crawfish yields. This reduced dependence upon the inflow of freshwater to ponds, thus lowering pumping costs and conserving water. These aerators are now recommended as standard management tools in crawfish culture. Supplemental oxygen did not improve trout growth, but did increase the carrying capacity of raceways on commercial trout farms.

4. Enhancement of the Immune Response to Edwardsiella ictaluri in Channel Catfish. Edwardsiella ictaluri is the bacteria which causes enteric septicemia of catfish (ESC), one of the most significant diseases resulting in channel catfish losses. Scientists at three universities are attempting to improve response of catfish to immunization against Edwardsiella ictaluri by feeding the animals diets which contain various concentrations of vitamin E and selenium. Both of these substances have been shown to affect the immune system. To date, it has been observed that animals fed diets deficient in either vitamin E or selenium do not develop immunity to Edwardsiella ictaluri as well as animals fed diets containing normal or high levels of these substances. Studies are in progress to determine if various combinations of vitamin E and selenium will enhance the immune response.

5. Immunization of Channel Catfish. In another ESC disease control study, an immunodominant antigen was isolated from the outer membrane of Edwardsiella ictaluri. The dominant antigen produces a stronger immunity than the whole cell in channel catfish and is a likely candidate for a sub-unit vaccine. The effects if dietary manipulation of various lipid sources on immune response to bath and oral immunization in channel catfish shows a differentiation in macrophage function and antibody production. Menhaden oil in the diet enhanced macrophage killing of Edwardsiella ictaluri.

6. Influence of Nutrition on Body Composition and Sensory Quality of Farm Raised Catfish. Changing the ratio of protein-to-energy in practical catfish feeds has a slight but not great effect on fattiness and possibly a minimal effect on frozen keeping quality of fish flesh. Also, when catfish are effectively fed to satiation, growth is not improved when protein level in the feed exceeds 25%. Preliminary results indicate no difference in frozen storage quality of fish fed feeds with different protein levels. Type of fats (beef, catfish or menhaden) or amount added to the feed (2% or 4%) had no effect on weight gain or body fat percentage in year-2 catfish. Food consumption and growth of catfish increased when 0.1% carnitine was added to low energy feeds but when not added to high energy feeds. Feeding high levels of vitamin E shows promise for reducing oxidative rancidity in frozen catfish fillets, especially under poor storage conditions. Fat beneath the skin, which is the major cause of rancidity of frozen catfish fillets, can be removed by adjustment of mechanical skinners but causes a slight yield loss and rougher surface on the fillet. Antioxidants applied in a glaze on frozen catfish fillets reduced oxidative rancidity for a period of 4 to 6 weeks.

7. Harvesting, Loading, and Grading Systems for Cultured Freshwater Finfishes and Crustaceans. A finfish harvesting workshop held in Georgia demonstrated the potential use for fish pumps for harvesting and loading channel catfish in the Southern Region. Results of research and extension activities conducted in Alabama and Georgia have been directly responsible for some catfish live haulers converting to the water displacement method of estimating catfish weight in live haul tanks. Thus, catfish can be placed directly into hauling tanks with greater efficiency and not weighed with scales, a process that may cause stress to fish in transfer. Crawfish harvesting research in Louisiana identified a pyramid trap that is 44% more efficient than another commonly used trap in the industry. By using these pyramid traps, the number of harvest days can be reduced from 5-6 days/week (100-120 days/season) to 3 days/week (50-60 days/season) with no apparent reduction in crawfish yield. Preliminary data indicate this should reduce crawfish harvesting costs by 30-45%. The Louisiana Cooperative Extension Service is recommending this change in crawfish harvesting strategy to producers for the 1990-91 production season.

8. Develop a Statistical Data Collection System for Farm-raised Catfish and Other Aquaculture Products in the Southern Region. Needed data sources for the catfish industry have been identified and included the following industry sectors: Fingerling producers, food and brood fish producers, processing, and feed manufacturing. Also, county extension agents and extension aquacultural specialists were identified as essential sources for these data. Acquisition, analysis and publication of the data identified should allow an accurate assessment of the status of the catfish industry on a current basis. With only minimal changes expected, the data collection system developed for the farm-raised catfish industry will serve as a model for development of data systems for other species.

9. Preparation of Extension Publications on Avian Predator Control in Aquaculture Facilities. The control of fish eating birds has become increasingly expensive for aquaculturists as the bird populations have increased during the past ten years. To answer requests for information on effective, legal methods of controlling these predators, Southern Region scientists combined efforts to produce five fact sheets and a video on these birds. These publications will provide information on the life history of the birds, their feeding habits, as well as possible control methods.

The following four new projects will be initiated in 1991:

Educational Materials for Aquaculturists and Consumers

Characterization of Finfish and Shellfish Aquacultural Effluents

Food Safety and Sanitation for Aquacultural Products (Microbial)

Aquaculture Food Safety (Residues)

Using the Regional Aquaculture Center concept, we are now able to develop and coordinate aquaculture research and extension activities throughout the nation if adequate support is provided. The Center Directors and USDA representatives function as the National Coordinating Council for Aquaculture to help accomplish this.

We respectfully request that funding at the authorized level of $7.5 million be provided these extremely important programs.

Thank you for the opportunity to submit our testimony.

STATEMENT OF JACK L. STONEHOCKER, DIRECTOR, COLORADO RIVER COMMISSION

The administration has requested that $14,780,000 be appropriated in Fiscal Year 1992 to implement the salinity control programs identified for the Department of Agriculture. This is the same amount provided by Congress in Fiscal Year 1991. The Salinity Control Advisory Council, in its 1990 annual report found that an appropriation of $22,000,000 was needed if water quality standards are to be maintained in the Colorado River. The Basin States have concluded that the President's budget request is not adequate to implement a program that would ensure that total dissolved solid levels in the Colorado River will not exceed the water quality numeric criteria agreed to by the States and concurred upon by the EPA.

The Colorado River Commission urges the Congress to appropriate a total of $22,000,000 for Fiscal Year 1992. If this amount is not appropriated the probability of water quality standards being exceeded will be greatly increased.

It is important to note that any reductions in these appropriations will delay implementation of the Salinity Control Program, and will lead to increased economic damages to the users of Colorado River water in the United States and Mexico.

Jack L. Stonehocker

Jack L. Stonehocker
Director

STATEMENT OF THE SUSTAINABLE AGRICULTURE COALITION

The Sustainable Agriculture Coalition, comprised of Midwest and Northern Plains-based organizations engaged with farmers in developing and advocating sustainable agricultural systems, welcomes this opportunity to submit testimony to the Subcommittee. We are also pleased to be part of a larger grouping of farm, rural, consumer, and environmental organizations that has joined forces to support a redirection of federal agricultural research and extension policy and programming toward the fostering of a more sustainable food and agricultural system.

Last year, these groups jointly submitted a "Sustainable Agriculture Initiative" to the Appropriations Committees, while making significant efforts to influence the outcome of the research and related titles of the 1990 Farm Bill. Having made substantial progress in the research and extension authorizations contained in the Farm Bill, we are now officially submitting our joint budget request for FY 1992 to the Subcommittee. We believe that the funding reflected in this request would go a long way toward making the promise of a major redirection contained in the authorization into a "appropriated" reality.

The Farm Bill in Brief

The 1990 Farm Bill establishes a new set of overarching **"purposes"** for the federal role in agricultural research and extension, including expanded economic and family farm opportunity and enhancement of human health and the environment (Sec. 1602). It also creates an **Agricultural Science and Technology Review Board** (Sec. 1605) to help set research priorities in light of these purposes and to assess research and technology transfer influences on agriculture, the environment, nutrition, and broad social, economic, and health indicators. The newly authorized **National Research Initiative Competitive Grants Program** (Sec. 1615 (a)) calls for high priority basic and applied research (and methods to transfer that research to onfarm or inmarket practice) concerning fundamental structures and functions of ecosystems and biological and physical bases of sustainable production systems. In addition, competitive and special grants are required for the first time to be consistent with the **development of systems of sustainable agriculture** (Sec. 1615 (b)). The Research Title also changes the law regarding **special grants** so that private organizations and institutions, including sustainable agriculture organizations, may be recipients of such grants (Sec. 1616). This change applies to grants made under the Water Quality Initiative as well as other special grants.

Subtitle B of the research title revises and strengthens the **Low-Input Sustainable Agriculture** (LISA) research and education program, providing it with a specific list of purposes and an administrative framework (Sec. 1622). A new **federal-state matching grant program**, administered through LISA, is also established to encourage state-level programs in sustainable research, extension and education (Sec. 1623). Recognizing the vital role of Extension in transfering research to the field and in encouraging feedback into the design of future research endeavors, Subtitle B also contains a new authorization (Sec. 1629) for a **Sustainable Agriculture Extension Program**, to include a national training program for county agents and specialists and a state-level outreach program. Subtitle B also directs USDA to develop

sustainable agriculture technical guides, handbooks, and other educational material (Sec. 1628).

The Research Title also establishes a **biotechnology risk assessment grant program** for environmental assessment research concerning the introduction of genetically engineered organisms into the environment (Sec. 1668). This authority sets aside at least one percent of biotechnology research funding for this purpose.

The Conservation Title of the Farm Bill also includes several important research and extension initiatives. A new **composting research and extension program** is authorized (Sec. 1456). The authorization for the coordinated **water quality research program** is also contained in the conservation title (Sec. 1484), with the top priority given to research to develop farming systems and practices which can prevent water contamination, including sustainable agricultural practices.

Elsewhere in the Farm Bill, the Fruits, Vegetables, and Marketing Title directs USDA to conduct research to examine the effects of grade standards governing **cosmetic appearance** on the use of pesticides and marketing research to determine the feasibility of consumer information and education programs related to changes in grading standards (Sec. 1352). An Advisory Committee would help direct and review this program. Title 21 establishes a national organic production program, including a **National Organic Standards Board** (Sec. 2119) to research and develop standards for substances used in organic production and to help implement the program. Title 25 contains an **education and outreach program for minority farmers** (Sec. 2501) that may include information and assistance about sustainable agriculture practices and programs.

The Budget Request

The attached budget request attempts to fulfill the promise of the Farm Bill by allocating funding in such a way as to redirect some existing funding in order to reflect the increased priority given to sustainable agriculture and to get some of the newly authorized programs off the ground. When factoring in the sources of redirection, the total request runs nearly $40 million less than the Executive Request, despite the fact that the Administration has not requested funding for any new Farm Bill programs and proposes cuts in sustainable agriculture research funding.

We urge the Subcommittee to consider this joint request with great seriousness and to reflect its proposals in the Subcommittee bill to the fullest extent possible. We will provide you with more detailed information on each of the specific proposals in the near future and would be happy to respond to any questions or comments that members or staff may have. Thank you for this opportunity to share our views.

FY 1992 BUDGET REQUEST FOR SUSTAINABLE AGRICULTURE RESEARCH AND EXTENSION

Summary of Request

($ millions)

	FY 91 Appropriation	FY 92 Executive Request	FY 92 Our Recommendation
Office of the Secretary			
Interdisciplinary Scientific Team Analysis Program	--	--	$20.0 #
Agricultural Research Service			
Integration of Agricultural Systems	$11.5	$11.9	$33.0 #
Cooperative State Research Service			
• Markets, Trade, and Policy: National Research Initiative	$0.0	$2.0	$12.0
• Cosmetic Appearance of Perishable Commodities	--	$0.0	$4.0
Low-Input Sustainable Agriculture Program	$6.7	$4.5	$30.0
Extension Service			
• Sustainable Ag Extension Program-County Agent Training	--	$0.0	$15.0
• Technical Guides and Handbooks	--	$0.0	$1.0
Water Quality Demonstration and Management	$10.4	$15.5	$18.0
CSRS/Extension			
• Composting Research and Extension Program	--	$0.0	$2.0
Office of Advocacy & Enterprise			
• Minority Farmer Outreach and Education on Sus Ag	--	$0.0	$3.0

# These funds would be pooled operating funds from all pertinent USDA agencies - ARS, CSRS, ES, FS, SCS, AMS, ERS, APHIS, FNS

# The proposed increase would be redirected funds from each of the other five research program categories -- plant science, animal science, soil and water, commodity conversion and delivery, and human nutrition. The FY 91 funding for these 5 categories together is $595.2 million. The proposed $33 million represents 5 percent of the ARS research budget.

• = new program created by the Food, Agriculture, Conservation and Trade Act of 1990 (FACT Act)

Soil Conservation Service			
National Agricultural Lands Study Update	--	--	$0.4
Boards and Committees			
• Ag Science & Technology Review Board	--	$0.0	$0.2
• National Organic Standards Board	--	$0.0	$0.2
• Advisory Committee on Cosmetic Appearance	--	$0.0	$0.05
TOTAL - NEW BOARDS & ADVISORY COMMITTEES	--	$0.5	$0.45
TOTAL ARS RESEARCH PROGRAM BUDGET	$621.6	$670.6	$621.6
TOTAL NATIONAL RESEARCH INITIATIVE (CSRS)	$73.0	$125.0	$85.0
WATER QUALITY INITIATIVE RESEARCH (CSRS)	$8.0	$10.0	$8.0
TOTAL	$719.7	$826.1	$788.45

Requested Report Language:

1. National Research Initiative - Require compliance with the mandate found in Sec. 1615 of the FACT Act that no less than 20 percent of NRI competitive grants funding be for multidisciplinary research and 20 percent for mission-linked research, and that NRI research be consistent with the development of sustainable agricultural systems.

2. Water Quality Research - Require compliance with the research priorities of Sec. 1484 of the FACT Act, including a major emphasis on sustainable and associated farming practices. Require that all future water quality research proposals be made available to all educational institutions and private organizations as provided in Sec. 1616 of the FACT Act.

3. Biotechnology Risk Assessment Research - Set aside one percent of all funding for biotechnology research for research grants for environmental assessment of the introduction of genetically engineered organisms into the environment, as required by Sec. 1668 of the FACT Act.

4. Alternative Agricultural Research and Commercialization - Set aside at least 30 percent of all funds appopriated for new products/new uses research and commercialization for research and development of new uses and new products for resource-conserving crops.

APPROPRIATIONS REQUEST FOR RESEARCH AND EDUCATION

I. OFFICE OF THE SECRETARY

Interdisciplinary Scientific Team Analysis Program (ISTAP)
Coordinated out of the Office of the Secretary
Budget: $20 million (for Phase I, FY 1992)

Redirect funding from all pertinent USDA agencies to establish a program to coordinate and evaluate basic and applied research generated by USDA in an interdisciplinary scientific framework. The bulk of current federal agricultural research is component, experimental research which is all too rarely pulled together in an systems approach and analyzed for broad impacts. This team would enhance efforts to correct this deficiency.

Cross-discipline analysis would be performed for the purpose of ascertaining the **broad impacts of the application of research results** to the local and regional economy, employment, income levels, food production levels, structure of agriculture, natural resources, environment, and public health. This analysis shall be performed by cross-disciplinary teams comprised of a **full range of disciplines**, including economics, ecology, sociology, climatology, geology, agronomy, silvaculture, biology, resource management, conservation, marketing, and infrastructure systems analysis.

In phase one, interdisciplinary teams shall analyze a broad cross-section of research results from individual USDA agencies to determine the impacts of widespread application of such results on whole-farm systems, productivity, land tenure, local and regional economies, income and employment levels, natural resource protection, the environment, public health, and public infrastructure needs. Reports shall be made available to Congress and the public on these evaluations.

II. AGRICULTURAL RESEARCH SERVICE

Integration of Agricultural Systems
Agricultural Research Service
Budget: $33 million

Increase category to five percent of the ARS research program budget to fund additional basic and applied **multidisciplinary, systems research** on the development and impact of sustainable farming systems, with a focus on the **integration** of biological cycles and controls, soil fertility and tilth enhancement, optimal use of on-farm resources, agroecology, and natural resource conservation and enhancement. To include on-farm, adaptive research and on-farm demonstrations of promising practices and systems. Within the general context of whole farm and natural systems research, emphases will include risk management, profitability and retained earnings, diversification, water quality and conservation, farmer health and safety, food safety and quality, marketing, and energy conservation.

III. COOPERATIVE STATE RESEARCH SERVICE

A. National Research Initiative/ Markets, Trade and Policy
Cooperative State Research Service - Competitive Grants
Budget: $12 million

Provide $12 million in NRI funding for the "Markets, Trade and Policy" subject area. Within these funds, earmark:

- $5 million for **technology assessment**, with priorities for use of these funds to be established in conjunction with the Agricultural Science and Technology Review Board,

- $3 million for new approaches to **rural economic development** issues, including the potential of sustainable agriculture, farming-community interdependence, social structure, new farm businesses, local input production, value-added ag products, secondary farm businesses, off-farm enterprises, and rural resource management,

- $4 million for **marketing research** to examine the impacts of, and barriers created by, domestic and international food marketing policies and practices on the expansion of the organic and resource-conserving farming and foods industries and to develop options for marketing policies and practices that encourage increased production and sale of of organic and resource-conserving crops and food products.

Consistent with Sec. 1615 of the FACT Act, not less than 20 percent of (FY 92) NRI funding shall be for multidisciplinary research, not less than 20 percent shall be for mission-linked research, and all funding shall be consistent with the development of sustainable agricultural systems.

B. Cosmetic Appearance of Perishable Commodities

Cooperative State Research Service
Budget: $4 million

Research to examine the **effects of grade standards and other regulations governing cosmetic appearance on the use of pesticides** in the production of perishable commodities, as required by Sec. 1352 of the FACT Act. Includes market research projects in three states to demonstrate and evaluate the feasibility of consumer information and education programs related to grading standards.

C. Low-Input Sustainable Agriculture Program (LISA)

Cooperative State Research Service
Budget: $30 million

Increase funding for the Low-Input Sustainable Agriculture competitive grants program to $30 million, including $25 million in the existing research and extension program on **sustainable crop and livestock production systems.**

The additional $5 million would begin encouraging the development or expansion of state sustainable agriculture programs, leveraging more state money through the competitive grants program established by Sec. 1623 of the FACT Act (**"Federal-State Matching Grant Program"**).

Establish a commitment to phase up to the total authorized level ($40 million) during the next two fiscal years.

IV. EXTENSION SERVICE

A. Sustainable Ag Extension Program - County Agent Training

Extension Service
Budget: $15 million

Provide $15 million to develop and begin the **National Training Program** for Extension agents and other professionals and the **education and outreach program** established by Sec. 1629 of the FACT Act. The training program would be administered by Extension as a competitive grants program, utilizing the LISA regional panels to select regional/intensive training and short courses/basic training grantees. The outreach program would be coordinated by state Extension offices. The total program be implemented under the new Extension National Initiative on Sustainable Agriculture.

Establish a commitment to phase up to the total authorized level ($20 million) in the next fiscal year.

B. Technical Guides and Handbooks

Extension Service
Budget: $1 million

Begin funding for the Extension Service's participation, with the Soil Conservation Service, in the development of the technical guidance and technical assistance materials for **sustainable agriculture** production systems, required to be in place by 1993 in accordance with Sec. 1628 of the FACT Act. Should be coordinated with any additional technical guide activity on **water quality** protection and **wetland** preservation and **wildlife habitat** improvement that may occur as a result of the authorizations in Sec. 1439 and Sec. 1446 of the FACT Act.

C. Water Quality Demonstration and Education

Extension Service
Budget: $18.0 million

Increase Extension funding by $5.1 million to $18.0 million to enable full participation by Extension in the joint **demonstration projects** and **hydrologic unit areas**, to expand **educational and program delivery** capabilties, and to intesify efforts in **farmstead pollution assessment** and locally-adapted, farmer-friendly, low-cost **soil and water testing**.

V. CSRS/EXTENSION

Composting Research and Extension Program
ARS, CSRS, ES
Budget: $2 million

Begin funding for the information collection, research, and extension competitive grants program authorized by Sec. 1456 of the FACT Act by funding literature and research reviews, determining research gaps and priorities, and improving technology transfer information and education. Emphasis on **on-farm and other composting techniques and demonstrations**, potential **uses and markets** for compost derived from animal or agricultural wastes, and **safe and appropriate methods** for storing, processing, handling, and using compost. To be coordinated with ARS composting research.

VI. OFFICE OF ADVOCACY AND ENTERPRISE

Minority Farmer Outreach and Education on Sustainable Ag
Office of Advocacy and Enterprise
Budget: $3 million

Provide $3 million to partially fund the Minority Farmer Outreach and Education program authorized by Sec. 2501 (a) of the FACT Act to help ensure that minority farmers are provided adequate technical assistance and information about all sustainable agriculture and conservation programs. Grant funds to be awarded equally to community based organizations and educational institutions that serve socially disadvantaged farmers and ranchers, including the 1890 land-grant colleges.

VII. SOIL CONSERVATION SERVICE

Update of National Agricultural Lands Study
Soil Conservation Service
Budget: $400,000

Update the 1981 National Agricultural Lands Study to document the extent and rate of conversion of farmland to nonagricultural uses in each region of the US. Assessments would be made of the effects of farmland conversion on the food security of the US, the production of specific crops, the environment, and regional economic interests. Further, progress at the State and local level in developing farmland protection programs would be analyzed.

VIII. ADVISORY COMMITTEES AND BOARDS

A. Agricultural Science and Technology Review Board: $200,000

Authorized by Sec. 1605 of the FACT Act, the mandate of this Review Board is to provide technical interpretation of research issues for use by the Joint Council in setting priorities and to provide technology assessment of research and technology transfer initiatives, including the extent to which they foster congressionally-stated research purposes. The Board will then make recommendations on how the federal research program can best fulfill the research purposes stated in the FACT Act.

B. National Organic Standards Board: $200,000

Authorized by Sec. 2119 of the FACT Act, the mandate of the Standards Board is to assist in the research and development of standards for substances used in organic production and to advise the Secretary on implementation of the National Organic Production Program.

C. Advisory Committee on Cosmetic Appearance: $50,000

Authorized by Sec. 1351 of the FACT Act, the mandate of this advisory committee is to provide recommendations regarding implementation and ongoing review and oversight of the cosmetic appearance program regarding grading standards and consumer education.

IX. REPORT LANGUAGE

A. National Research Initiative/CSRS

The Committee expects the Department to fully comply with the mandate included in Sec. 1615 of the FACT Act that not less than 20 percent of NRI funding be for multidisciplinary research, not less than 20 percent be for mission-linked research, and that NRI funding be consistent with the development of sustainable agricultural systems.

B. Water Quality Research/ARS & CSRS

The Committee expects the Department to comply with the priorities in Sec. 1484 of the FACT Act, including a major emphasis on water quality research to develop sustainable and associated farming systems and practices which prevent contamination while maintaining or improving profitability. The Committee further expects the Department to make all future requests for proposals on water quality research available to all eligible educational institutions and private organizations as provided by Sec. 1616 of the FACT Act.

C. Biotechnology Risk Assesment Research/ARS & CSRS

One percent of all funding for biotechnology research shall be set aside for research grants for environmental assessment of the introduction of genetically engineered organisms into the environment, as authorized by Sec. 1668 of the FACT Act.

D. Alternative Agricultural Research and Commercialization

Not less than 30 percent of funds appropriated for the program authorized by Subtitle G of Title 16 of the FACT Act (AARC) or for any ARS or CSRS new uses/new products research shall be used for research and development of new uses and new products for resource-conserving crops.

FOR FURTHER INFORMATION

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TEXAS A&M UNIVERSITY SYSTEM

STATEMENT OF DR. EDWARD HILER, INTERIM CHANCELLOR

This testimony is in support of an appropriation of $4.7M to complete the construction of a facility to house the Institute of Biosciences and Technology, a component of Texas A&M University that will be located in the Texas Medical Center at Houston.

I would like to first express my appreciation for the previous support that Congress has provided, $50,000 in FY88 for feasibility study, $1.25 million in FY89 for construction, $2.9 million in FY90 for construction and 3.6 million in FY91 for construction. Our initial request for $12.5 million in matching funds resulting in a request this year for the $4.7 million remaining.

We have been extremely aggressive in the private capital campaigns effort to support the Institute of Biosciences and Technology. At this time we have approximately $21.3 million pledged over the next five years. Of this sum, approximately $16.3 million is for construction with the remaining being designated for endowment support of the research programs.

The Texas Medical Center, a leading world research center with over $200 million in sponsored research annually, has been a willing partner in the program development of the Institute of Biosciences and Technology. This Institute is designed to bring the resources of The Texas A&M University System in to play with the existing Texas Medical Center. It is a unique opportunity to meld agriculture and veterinary sciences with the human research efforts

in Houston. As has been previously presented, the collaborative efforts between the various institutions of the Texas Medical Center and The Texas A&M University System will be significantly enhanced by the physical location of the structure in Houston.

The programs from The Texas A&M University System that will initially be involved in the Institute of Biosciences and Technology come from the Colleges of Agriculture and Life Sciences, Veterinary Medicine, Sciences and Engineering from Texas A&M University. In addition, the Texas Agricultural Experiment Station will have a significant research investment in the Institute of Biosciences and Technology along with Texas Engineering Experiment Station. The Public Education and Technology transfer component of the Institute will include participation of the Texas Agricultural Extension Service.

As formal collaboration efforts are identified and agreed upon, resources of additional components of The Texas A&M University System, will be pledged to insure that the programs are supported.

When the Institute of Biosciences and Technology was initially conceived, a scientific advisory board of distinguished scientists and research administrators from across the country were brought together to help formulate broad goals and objectives of the Institute. Specific programs that have been identified and remain as the basic goals of the Institute are as follows:

(1) Strengthen on-going collaborative research between scientists in agriculture, veterinary medicine and medicine

(2) Stimulate new research initiatives and allow national collaboration by recruiting key scientists engaged in multidisciplinary research for both the medical community and agriculture

(3) provide a forum for exchanging ideas between the agricultural and medical research communities

(4) assist in the technology transfer from the laboratory to the market place.

While the Center will be a component of The Texas A&M University System and is located in Houston within the Texas Medical Center, our goal in establishing the Institute is to insure that it becomes a national resource and capitalize on the opportunities currently available through the breakthroughs in basic biology. We believe this national resource will be of inestimable value in a very short time based on the following:

(1) The growing problem of metabolic and diet related disease along with the increasing cost of this problem,

(2) The opportunities for sharing complimentary scientific capability between medical, agricultural and engineering institutions to provide creative solutions to these problems,

(3) The resulting benefit to the U.S. economy through new biotechnology industries that will be created as a result of this investment in research.

The State Legislature of Texas has provided operating funds for the Institute of Biosciences at the rate of $7.5 million over the current biennium. This combination of state funds for operation and private source endowments for enhancement programs and matching construction costs, allows us to ask for a nonrecurring, one time request for facility construction from the Federal Government.

The Institute of Biosciences and Technology, with its initial focus on comparative animal genetics and animal biotechnology, will play a major role in supplying the critical link between human and animal genetics. These programs, along with existing programs of the other institutions, in the Texas Medical Center, will help create one of the nation's leading centers for biotechnology research and comparative mapping of human and animal genomes, an area of major emphasis in many of the research components of the federal government. These activities at the Institute of Bioscience and Technology will provide the basis for the development of new products and services in the agricultural, pharmaceutical, chemical, medical and food industries.

The initial programs of the Institute of Biosciences and Technology will focus on the following programs:

(1) Molecular Parasitology

(2) Mammalian DNA Viruses

(3) Gene Expression in Transgenic Systems Including Gene Therapy

(4) Neurobiology

(5) Human Nutrition

(6) Genome Research

You have heard from many sources that the new sciences and programs developed through the utilization of biotechnology has become one of the top scientific priorities of the federal government. The

President, Congress, USDA, the National Institute of Health and the Department of Energy have all expressed a desire to maximize the benefits of biotechnology research. The impact of biotechnology will stretch from medicine to agriculture to hazardous waste management and, similar to the spin off of the NASA technology, to implications we have not even conceived of today. We believe very strongly that the course from biotechnology's promises to its realities.

Our facility, 85% completed will be a major player in the world-wide arena of Biotechnology and we respectfully ask this committee to approve our non-recurring request of $4.7 million for the completion of construction of the Institute of Biosciences and Technology Research Facility.

TEXAS TECH UNIVERSITY

STATEMENT OF DR. SAM E. CURL, DEAN, COLLEGE OF AGRICULTURAL SCIENCES

SUMMARY

PHASE II CONSTRUCTION FUNDS FOR THE USDA/ARS PLANT STRESS AND WATER CONSERVATION RESEARCH LABORATORY AUTHORIZED IN 1988 BY P.L. 100-339 AND A REQUEST FOR ENHANCED PROGRAM SUPPORT. **The USDA/ARS PROGRAM AND LABORATORY LOCATED AT LUBBOCK, TEXAS, CONDUCTS RESEARCH IN COOPERATION WITH TEXAS TECH UNIVERSITY AND THE TEXAS AGRICULTURAL EXPERIMENT STATION.**

SPECIFIC ACTION REQUESTED OF THE COMMITTEE: It is requested that Congress appropriate $12M to fund the construction of Phase II of the Plant Stress and Water Conservation Research Laboratory authorized by the 100TH CONGRESS through PUBLIC LAW 100-339. Construction funds of $500,000 were appropriated for Phase I of Laboratory Construction. Work on Phase I is well underway. Completion of architectural plans for the laboratory was achieved through use of designated-unspent funds ($413,000) previously appropriated for laboratory planning together with the $600,000 of planning funds provided for FY 91. This planning is nearing completion. The building will be constructed on the Texas Tech University campus on a 50 acre tract of land leased to USDA/ARS by the Texas Tech University Board of Regents.

A request for a $250,000 increase in the plant stress and water conservation research program appropriation is also made to increase funding of the molecular biology research program linking existing plant genetics and breeding experiments with the newest molecular laboratory biotechnologies. The expanded research will focus on understanding the genetic control of plant mechanisms which facilitate drought and heat tolerance in crop plants.

JUSTIFICATION: The action of the federal government in 1988 through PUBLIC LAW 100-339 authorizing a plant stress and water conservation research laboratory and program at Lubbock, Texas was very timely and will have a substantial impact on food production and environmental quality for decades to come. The Greenhouse Effect resulting from increased atmospheric carbon dioxide, Global Warming induced climatic changes, and the extensive drought during the summer of 1988 and during the past five years in California are ready examples of the fragility of our managed and natural ecosystems, and the potential for reduction in food and fiber quantity from even modest changes in weather patterns.

The formal plant stress and water conservation program was initiated in 1979 after 20 years of feasibility studies and planning by agencies of the federal government. The federal government through USDA/ARS, and the State of Texas through Texas Tech University and the Texas Agricultural Experiment Station, have put in place over the last 11 years a comprehensive-integrated program in which 20 senior scientists are today working to develop improved crop plants and planting systems that will provide for economically optimal crop production under variable-extreme environmental conditions. Scientists with expertise in the broad areas of genetics, breeding and molecular biology; biochemistry and physiology; and climatology, soil science and systems research have research programs poised for the challenges of the predicted climatic changes forecast within the next several decades. This program will be greatly enhanced, and its potential fulfilled, with the construction of a laboratory on the Texas Tech campus in conjunction with a broad array of established basic sciences. Additional program dollars will fill existing gaps in the continuum of technology transfer from laboratory molecular technologies to field applications of genetically modified plants exhibiting improved stress tolerance.

INTRODUCTION

Mr. Chairman, I greatly appreciate the opportunity to appear before the Committee today to request that Congress appropriate $12M to fund construction of Phase II of the USDA/ARS Plant Stress and Water Conservation Research Laboratory at Lubbock, Texas authorized by the 100TH CONGRESS through PUBLIC LAW 100-339. We are also requesting that Congress appropriate $250,000 to enhance the molecular biology research program linking existing plant genetics and breeding experiments with the newest molecular laboratory biotechnologies. The expanded research will focus on understanding the genetic control of plant mechanisms which facilitate drought and heat tolerance in crop plants. This vital research is encompassed in the comprehensive nationwide research mission of the U. S. Department of Agriculture/Agricultural Research Service, and the research program implements the recommendations of the Plant Stress and Soil Water Conservation feasibility study prepared by the USDA/ARS.

The action of the Federal Government in 1988 through PUBLIC LAW 100-339 authorizing a plant stress and water conservation research laboratory and program at Lubbock, Texas was very timely and will have a substantial impact on food production and environmental quality for decades to come. The Greenhouse Effect resulting from increased atmospheric carbon dioxide and other gases, Global Warming induced climatic changes, and the extensive drought during the summer of 1988 and during the past five years in California are ready examples of the fragility of our managed and natural ecosystems, and the potential for reduction in food and fiber quantity from even modest changes in weather patterns.

The background setting for the problem which the research program addresses is found in Senate Document 59, the feasibility study conducted by the Science and Education Administration of USDA in 1977, and the statement of Texas Tech University submitted for the record before this committee on March 26, 1979. We will not repeat this information, as we believe the record is replete with scientific and economic documentation prepared by a select committee which describes the conditions of the region and the research required to seek viable solutions to a complex set of critical problems confronting the areas of agriculture, natural resource conservation and environmental protection. The need for a comprehensive, multidisciplinary, long-term basic science research program is obvious. Texas Tech University has taken the lead in the development of a cooperative research program with the USDA/ARS, the Texas Agricultural Experiment Station, colleges, universities, and federal laboratories throughout the region, agricultural producers, the agribusiness industry, and private research organizations.

BACKGROUND

The key planning events involving Texas Tech University which have taken place in conjunction with the development of the research program and laboratory to date are as follows:

1975-1976: Preliminary discussions with officials of the U. S. Department of Agriculture and members of the Congress.

1977-1978: Congress appropriated $100,000 for a feasibility study. The study team concluded that there was an urgent need for a plant stress and water conservation research program and that Lubbock, Texas, was the ideal location for a laboratory facility. A later decision to locate the facility on the campus of Texas Tech University, in conjunction with the College of Agricultural Sciences, finalized the first major step in the development of the program.

1978-1979: Congress appropriated $800,000 for the preparation of a research program plan and architectural and engineering plans for the appropriate laboratory in which to carry out the proposed research. The Science and Education Administration in August, 1979, transferred a USDA/ARS scientist (plant physiologist) to Lubbock, Texas to serve as a cooperative scientist working with Texas Tech and Texas Agricultural Experiment Station scientists on environmental stress mechanisms in sorghum and cotton. Texas Tech provides office and laboratory space and use of the library, computer, and other University facilities as well as extending full faculty privileges to the USDA/ARS scientists.

1980-1981: Congress appropriated $200,000 to initiate basic research on the problem.

1981-1982: Congress appropriated an additional $100,000 to complement an additional $100,000 of formal budget funds.

1983-1984: Congress appropriated $500,000 for completion of the architectural and engineering plans.

1984-1985: Congress appropriated an additional $150,000 for support of the ongoing cooperative research program, bringing the total annual funding for the research program to $900,000 ($525,000 in Base Funds and $375,000 in Formal Budget Funds).

1985-1986: Congress appropriated an additional $250,000 for support of the ongoing cooperative research program, bringing the total annual funding for the research program to $1,150,000 ($525,000 in Base Funds and $625,000 in Formal Budget Funds).

1987-1988: Congress appropriated an additional $250,000 for support of the ongoing cooperative research program, bringing the total annual program funding to $1,400,000 ($525,000 in Base Funds and $875,000 in Formal Budget Funds).

1988-1989: Congress passed and the President signed into law PUBLIC LAW 100-339 which authorizes construction of the Plant Stress and Water Conservation Research Laboratory on the campus of Texas Tech University.

1989-1990: Congress appropriated $500,000 to construct Phase I of the Plant Stress and Water Conservation Research Laboratory.

1990-1991: Congress appropriated $600,000 to complete the architectural and engineering plans for the main laboratory and $75,000 to enhance the ongoing cooperative research program, bringing total program funding to $1,675,000.

Funding of the Cooperative Plant Stress and Water Conservation Research Program

Year	*Base Funds*	*Formal Budget Funds*	*Congressional Add-On Funds*	*Total Funds*
1980	-0-	-0-	$200,000	$ 200,000
1981	$200,000	$100,000	$100,000	$ 400,000
1982	$400,000	$ 50,000	-0-	$ 450,000
1983	$525,000	$225,000	-0-	$ 750,000
1984	$525,000	$225,000	-0-	$ 750,000
1985	$525,000	$225,000	$150,000	$ 900,000
1986	$525,000	$375,000	$250,000	$1,150,000
1987	$525,000	$375,000	$250,000	$1,150,000
1988	$525,000	$625,000	$250,000	$1,400,000

Year	*Base Funds*	*Formal Budget Funds*	*Congressional Add-On Funds*	*Total Funds*
1989	$525,000	$875,000	-0-	$1,400,000
1990	$725,000	$875,000	-0-	$1,600,000
1991	$725,000	$875,000	$ 75,000	$1,675,000
Request 1992	$725,000	$950,000	$250,000	$1,925,000

RESEARCH MISSION AND ACTIVITY TO DATE

The plant stress and water conservation research program is committed to understanding the basic principles of plant growth and development under conditions of thermal and water stress, and to use this knowledge to produce new crop varieties and management systems that minimize the impact of climatic extremes. More specifically, the program determines avoidance, tolerance, and survival mechanisms associated with plant growth and development under water and thermal stress; it relates these mechanisms to the dynamics of water and nutrient transport within the soil-plant-atmosphere continuum; it defines the extent of genetic variability of the mechanisms; and it seeks to exploit the latest techniques of molecular biology to find and/or create unique crop germplasm which is genetically stress resistant.

Research is designed to support the goals of the USDA/ARS by:

- Strongly interfacing the results of the Plant Stress and Water Conservation (PSWC) Program with other state and federal research programs, and with agricultural industries.
- Conducting the PSWC program in concert with the national USDA/ARS plan, and under the overall leadership of the national program staff of USDA/ARS.
- Concentrating research efforts toward improving the efficiency of crop production while conserving natural resources and maintaining water quality.

Three research thrusts support the program mission in accordance with plans established by a select committee at the time the program was initially conceptualized, and subsequently approved by the agencies committed to conducting the research. Research is being conducted in genetics, breeding and molecular biology; biochemistry and physiology; and climatology, soil science, and cropping systems.

Genetics, Breeding and Molecular Biology. Emphasis is on the evaluation and improvement of the cotton, wheat, sorghum, and forage genomes for improved water use efficiency and tolerance of drought and extreme thermal conditions. Cotton, sorghum and wheat regeneration from cell suspension cultures provides the basis for molecular-genetic manipulations of stress tolerant characteristics. Transgenic cotton plants, with bacterial marker genes have been regenerated to test the adequacy of the cotton transformation system. Numerous cell culture systems, and plants regenerated from them, are being utilized in the search for modified germplasm exhibiting tolerance for extreme environments. Variability in the production of heat shock proteins facilitating thermal tolerance has been identified as a genetically controlled characteristic in wheat, sorghum and cotton plants in the field, and cells in the test tube. Enhanced rooting systems of selected crops have been identified and tested in various newly modified and traditional production systems. Studies on guar and sunflowers have shown their adaptation to a wide range of climatic extremes. Genetic differences in the photosynthetic rates of sorghum have been identified and related to improvements in water use efficiency. Seedling establishment has been shown to be associated with a root growth- temperature interaction in forage species.

Biochemistry and Physiology. Studies in this area have defined the impact of enzyme kinetics as related to thermal stress and the synthesis of heat shock proteins. Researchers have shown that enzyme efficiency is related to the indigenous origin of crop germplasm, that crops have a very narrow temperature optimum (a "Thermal Kinetic Window"), and that plants use the physiological process of transpiration to maintain these desirable temperatures.

Climatology, Soil Science, and Cropping Systems. Technology has been developed to quantify root systems under field conditions. Research has shown that the area-wide cotton yield decline in the Southern High Plains is associated with reduced fertility and irrigation. A model has been developed and tested which separates plant transpiration from soil water evaporation. A cotton production system that integrates water, fertility, variety, and plant spacing has been developed and shown to improve cotton yields. Forage species and production systems have been identified that are highly adapted to semi-arid climates.

STATEMENT OF HON. STROM THURMOND, U.S. SENATOR FROM SOUTH CAROLINA

I would like to thank you and the other members of the Senate Appropriations Subcommittee on Agriculture, Rural Development and Related Agencies for the opportunity to submit this testimony.

Mr. Chairman, with the Federal Budget getting tighter over the last several years, it is evident that this trend will continue for fiscal year 1992. Therefore, in allocating funds we must seek to fund those areas which yield the greatest returns. Agricultural research has consistently provided important information to help our farmers become more competitive and productive than other farmers in the world. I am particularly interested in a number of very important programs and wish to emphasize the need for their funding. Following is a table which summarizes funding requests for Fiscal Year 1992 and a brief outline of each program.

	1991 Funding	1992 Request
PREVIOUSLY FUNDED PROGRAMS		
Alternative Cropping Systems:	$270,180	$280,000
Peach Tree Short Life:	$180,120	$200,000
USDA/ARS Vegetable Research Facility Charleston, South Carolina:	$0	$18,000,000
NEW FUNDING REQUESTS		
Disaster Crop Loss Assistance	$0	$900,000,000
International Trade Center:	$0	$1,200,000
Pest Control Alternatives:	$0	$750,000

ALTERNATIVE CROPPING SYSTEMS

Mr. Chairman, the first of these high-priority programs is the "Agricultural Adjustment in the Southeast through Alternative Cropping Systems Program," being conducted jointly by Clemson University, the University of Georgia, and North Carolina State University.

For the past seven years, these three universities have been conducting an innovative research program to improve the marketing and production practices of farmers. This program is aimed at increasing and stabilizing farm income in the Southeast through the development of alternative crops suitable to that region of the country. The Agricultural Economics and Horticulture departments of the universities involved work together to define "market windows" for certain crops. These "windows" help increase revenue to the farmers while providing markets with healthy commodities. Accordingly, I request that the Subcommittee appropriate $280,000 to continue this important program.

PEACH TREE SHORT LIFE

The "Peach Tree Short Life Research Program" is another example of our use of science to improve agriculture. This program is responsible for investigating the causes of premature death of young peach trees. This short life is caused by damage primarily inflicted on the root system by various nematodes. Since DBCP was banned in 1979 as a soil fumigant, no effective replacement has been developed. This research has identified production practices which lessen the incidence of the harmful nematode, but further work is needed. If funding is continued, future research will concentrate on identifying the genes in the rootstock which are resistant to nematode infestation and transferring these genes to a commonly used rootstock in the peach industry. Mr. Chairman, I respectfully request $200,000 for this research project to continue.

USDA/ARS VEGETABLE RESEARCH CENTER

The USDA/ARS has been conducting vegetable research at the Charleston, South Carolina facility for over 50 years. Three years ago $50,000 was appropriated to conduct a feasibility study. This study found that the existing facilities are inadequate to meet the current or future vegetable research needs. The House Appropriations Committee Report for Fiscal year 1988 stated that: "The existing facilities are occupied at 133 percent of designed capacity and are costly to maintain and substandard for scientific purposes." It further states that a safety hazard exists in moving both personnel and equipment across an extremely busy highway, U.S. 17.

In the Fiscal Year 1990 budget, $1.015 million was appropriated for architectural and engineering plans. The need for this research facility has been established. Clemson University has estimated that $18 million is needed to finish this project. I respectfully request that the total amount be included in the Fiscal Year 1992 budget.

DISASTER CROP LOSS ASSISTANCE

Last year, South Carolina as well as many other parts of the country suffered crop losses due to erratic weather conditions. Freezes, hail, drought, and flooding caused many farmers to lose most of their crops. A disaster assistance program was authorized in the 1990 Farm Bill (P.L. 101-624). However, the implementation of the program is subject to prior appropriations. It is estimated that farmers in South Carolina lost nearly $130 million in reduced sales of such agricultural commodities as peaches, tobacco, corn, soybeans, and cotton. Nationally, it is estimated that between $700 to $900 million is needed to fund a disaster assistance program. If the full amount is not available, then I request that a sufficient amount be appropriated to begin assisting those affected areas.

INTERNATIONAL TRADE DEVELOPMENT CENTER

International trade is crucial to the agricultural and rural communities of the South. Trade of food, fiber, and natural resources is important to this region, and marketing changes in these products dramatically affect the Southern economy. During the 1970s, non-metropolitan counties in the South increased imports due to favorable trade conditions, but when prices declined in the early 1980s the most severe damage occurred in the region. Between 1982 and 1987, for every one acre taken out of production by Midwestern farmers, the South lost two acres. This has caused hardships for agri-businesses and rural communities. Once again, we need to develop our technology and understanding of trade issues to cope with international market fluctuations as well as to expand our market share.

In order to aid in the development of this essential technology, it has been proposed that an "International Trade Development Center" be established. The primary purpose of the "Trade Center" will be to increase the international trade potential of businesses, especially small to medium-size firms. These firms figure prominently in the continued economic growth of Southern states. Trade Center efforts will include research on critically needed information about new markets and products, trade barriers, foreign cultures as well as export shipping of commodities.

The broad base of university, college, and government programs represented by this Center will be the key to its success and long-term viability. Mr. Chairman, while this program would be conducted in South Carolina the benefits would extend to all of the Southern states. According to the researchers proposing this project, $1.2 million is needed to help get this important research effort under way. I respectfully request that the full amount be appropriated for this project.

PEST CONTROL ALTERNATIVES FOR FRUIT AND VEGETABLE PRODUCTION

Recently, the agricultural industry has received much criticism about the misuse of chemicals and pesticides which aid the farmer in fighting insects and weeds. A number of fruit and vegetable farmers in South Carolina have contacted the professors at Clemson University about conducting a research program to aid in reducing the use of chemicals to control weeds and other pests. The farmers request for this assistance is evidence of the fact that they are truly concerned about providing the consumer with a quality product that is also safe to eat. Clemson University has estimated that $750,000 is needed to fund this farmer-requested research program. I request that the Subcommittee allocate the full amount for this worthwhile program.

Mr. Chairman, I thank you for allowing me the opportunity to submit this testimony. I hope that it will be beneficial to you and the other committee members in your efforts to prepare the fiscal year 1992 Agriculture, Rural Development and Related Agencies Appropriations Bill.

STATEMENT OF THE U.S. AGRICULTURAL EXPORT DEVELOPMENT COUNCIL

The U.S. Agricultural Export Development Council is an organization of seventy-two members working in over 100 countries to introduce, promote, and expand the demand for U.S. agricultural commodities. It is a privilege to represent U.S. producers in markets abroad. America's farmers and related businesses are our single greatest natural resource. And as an organization representing U.S. agricultural exports, I want to thank you for your committee's past commitment to our market development activities.

From our perspective, programs that expand agricultural exports are a smart investment in future economic prosperity. Not only do agricultural exports provide the farmer with more market options and a better income, they favorably impact the economy as a whole. In 1989, U.S. agricultural exports supported over 1,055,000 full-time jobs. Of the farm labor force, approximately 13 percent worked in the production of export commodities. If export related employment data for the forest products industry is included, this figure would increase by an additional 70,000 employees. It is further estimated that in the same year, $39.6 billion ($45.9 billion if forest products figures are included) of exported agricultural goods and supporting services generated $101 billion in economic activity. To put it simply: for each $1.00 of farm goods exported, an additional $1.52 of economic activity was generated. Exports of agricultural products foster increased employment, income and purchasing power in the farm and non-farm sectors.

In addition, U.S. agricultural export surpluses have consistently worked to counteract the U.S. trade deficit. In FY1989, U.S. agricultural exports totaled $39.6 billion and the resultant positive agricultural trade balance grew to $18.1 billion, up $3.7 billion from the previous year. In FY1990, agricultural exports totaled $40.1 billion, the highest level since 1986 and the trade surplus was $17.6 billion. (If forest products industry figures are included, U.S. agricultural exports in FY1989 totalled $45.9 billion, with an $18.7 billion surplus; in FY1990 exports increased to $46.6 billion with an $18.6 billion trade surplus).

Unfortunately, creating the demand for U.S. farm goods does not occur without a significant amount of effort. The Foreign Agricultural Service helps American producers take maximum advantage of increased opportunities to sell the fruits of their labors abroad. FAS functions as the clearinghouse for a vast amount of market development activity. FAS provides guidance and supervision to 72 commodity and food marketing organizations who are members of the U.S. Agricultural Export Development Council in developing a worldwide network of market development programs, including product exhibits, trade teams, trade services, market research and information programs, and trade referral services.

The role of FAS is especially important, given the level of intensity of competition in global agricultural markets. American agriculture must remain competitive in order to meet and beat those exporters who attempt to rob us of our traditional markets. We also need to be ready to face the challenges and special circumstances of a changing world order. In this respect FAS needs to have the support and cooperation of the market development cooperators, who in turn need to have the financial and trade policy support of FAS.

We respectfully submit that a funding level of at least $115 million is necessary for FAS to carry out its extremely important mission, considering the demands placed on FAS. In this regard we would like to point out that FAS staff and budgets declined 7 percent between 1980 and 1988 due to increased costs, while Congress enacted 12 new programs for FAS to administer.

In the international competitiveness battle, FAS administers a variety of important export programs vital to the continued success of the cooperators. These include the Export Credit Guarantee programs; the Marketing Promotion Program (formerly the Targeted Export Assistance Program); the Export Enhancement Program; and the PL-480 Food for Peace Program.

The Export Credit Guarantee and Intermediate Export Credit Guarantee Programs (GSM-102 and GSM-103) are currently the only commercial credit programs available for the export sale of U.S. agricultural commodities. They generally operate in cases where credit is necessary to increase or maintain U.S. commodity exports to a foreign market. They are targeted toward countries who have the financial wherewithal to make the repayments as scheduled. For the near term, the proposed funding levels of $5.5 billion ($5.0 billion for GSM-102 and $500 million for GSM-103) are adequate to meet requirements. Additional funding needs for the GSM programs will depend on developments in major markets, particularly the Soviet Union.

The 1990 Farm Bill also created a new program, entitled "Promotion of Agricultural Exports to Emerging Democracies." This program would provide not less than $1 billion of export credit guarantees for exports to emerging democracies over five years. A portion of the guarantees should be made available for the establishment or improvement of facilities in such countries, to improve the handling and distribution of imported agricultural commodities and products. We support the Administration's request for this program.

The Targeted Export Assistance Program (TEA) was enacted in the 1985 Farm Bill to promote U.S. agricultural product exports that had been determined to be negatively affected by the unfair trading practices of foreign competitors. The 1990 Farm Bill renamed the program the Marketing Promotion Program (MPP), and expanded its scope. The new purpose of the MPP is to assist U.S. trade organizations to develop, maintain, or expand commercial agricultural exports. However, priority is to be given to products that face unfair trade practices. The program is authorized at a funding level of $200 million per year. We recommend that the program be funded at its authorized level for 1992.

The Export Enhancement Program (EEP) was also created in the 1985 Farm Bill. Its objectives were: to boost U.S. agricultural products; to challenge the unfair trade practices of competing exporters, particularly those practices of the European Community; and to encourage serious negotiations toward agricultural trade reform under the auspices of the ongoing GATT negotiations. As of October 1, 1990, 110 initiatives had been announced targeting 73 countries and 12 commodities.

The new farm bill reauthorizes the EEP the program and re-emphasizes its goal of discouraging the unfair trade practices of competitors by making U.S. agricultural commodities competitive in the world market. We request that the EEP be funded at the level recommended in the President's budget.

The PL-480 Food for Peace program is the primary means by which the U.S. provides food assistance and shelter to countries in need. Traditionally such aid takes a variety of forms that range from direct humanitarian assistance to market development activities in recipient countries. Since its inception in 1954, 298 million metric tons of commodities valued at $36 billion have been exported through the program.

The commercial success of the PL-480 program is best illustrated by the emergence of Japan and Korea as cash markets for U.S. farm products. These two nations are distinguished graduates of the Food for Peace program.

The FY1990 Appropriations Act set funding for total PL-480 programming at $1.576 billion. We recommend that this level of funding be continued in 1992. We are following the implementation of the changes in the Food for Peace program and are concerned that administrative changes should not impede the implementation of the program.

We want to reiterate USAEDC's thanks for your past efforts. With your continued support further growth will certainly be possible.

U.S. HIDE, SKIN & LEATHER ASSOCIATION AND LEATHER INDUSTRIES OF AMERICA

STATEMENT OF JEROME BREITER, PRESIDENT, U.S. HIDE, SKIN & LEATHER ASSOCIATION AND CHARLES MYERS, PRESIDENT, LEATHER INDUSTRIES OF AMERICA

The combined membership of the U.S. Hide, Skin & Leather Association and the Leather Industries of America wishes to be on record in support of the hide and leather research program carried out by the Agricultural Research Service's Eastern Regional Research Center(ERRC).

Hides and leather represent a $4 billion industry -- one of the largest industries based on an agricultural by-product. The health of this industry is directly related to its ability to produce new and innovative products. The research programs of ERRC have done much to provide the technology so vital to our continued viability.

In recent years there has been an erosion of our domestic customer base. As a result there has been a major emphasis to expand in the export arena. This has been possible because of major marketing efforts, but also because innovations and research developments have provided the backbone to make U.S. products competitive in the world market. In 1990, U.S. leather exports were at $750 million up from $624 million in 1989. The three quarter billion dollar export figure represents a threefold increase in the last five years.

However, with the demise of our domestic customer base there has been severe contraction within our industries and a major casualty has been the loss of the research and development infrastructure supporting our efforts. We have long come to rely on the services and programs provided by the ARS effort at the Eastern Regional Research Center. In many areas this is the only research mechanism available to our industry that enables us to be competitive in a global sense.

Below are the major hide and leather activities currently being pursued at ERRC.

Hide Preservation

-Extraction of hide components by brine.
-Damage to hides by halophilic bacteria (preliminary exploration).

Hide Preparation for Tanning

-Effect of bating enzymes on grain layer.

Novel Tanning Chemistry

-Novel synthetic crosslinking agents.
-Development of chrome alternatives.
-Molecular modeling of collagen to aid in design of new tannages(preliminary exploration).

Recycling of Solid Tannery-waste

-Enzymatic processing to recover chrome from chrome shavings and related scrap.

Natural and Man-made Hide Components and Their Role in Physical Properties of Leather

-"Minority" natural collogens.
-Novel substantive fatliquors (preliminary exploration).
-Drying of leather, role of water in shoe-lasting, etc.
-Application of solvent-free finishes to leather.

The 1991 funding level at ERRC for this research is $1.454 million. This is only 70 percent of the budget that was spent on these programs more than ten years ago, without considering the effects of inflation. If we are to continue to remain competitive worldwide, it is imperative that the programs outlined above be expanded. Specifically, we can identify a number of areas where additional funding would work toward more rapid development of new technologies to benefit the industry.

1. Alternative Technology to Chrome Tanning: New computer-modeling techniques are providing clues to possible new, commercially feasible tanning processes. To work these out in detail, for more precise scale-up from the laboratory and for improved service to the industry, the research tannery at the Eastern Regional Research Center must be automated and otherwise upgraded.

2. Enzymatic Degradation of and New Products from Solid Tannery Wastes: A new breakthrough process for enzymatic digestion of solid wastes has been worked out on a full scale with four major tanneries. Much work remains to apply the new process to a variety of tannery wastes and to develop uses for the protein end products of the process.

3. Hide Preservation: In addition to electron beam irradiation as an alternative to brine curing, improvements in brine curing must be explored based on better knowledge of the bacteria which survive the brine environment.

4. Improve Treatments for Softening Leather: New basic polymer technology is available which looks promising for fatliquoring, i.e. the after-treatment of tan leather. Detailed study of the new techniques may provide important improvements in quality for top-value leather markets, important to exports.

For the above reasons, we respectfully request that the committee consider restoring the level of funding for hide and leather research at ERRC to $2 million--the level that it was more than a decade ago. This will allow these programs which are so important to the future of our industries to continue and expand.

U S WEST, INC.

STATEMENT OF TIMOTHY A. GRIFFIN

Mr. Chairman, I am pleased to have the opportunity to submit written testimony to the Subcommittee on the need for an aggressive federal role in rural economic development. Specifically I will focus my comments on a new grant program for distance education which has been authorized under the Rural Electrification Administration.

My name is Timothy Griffin and I am Vice President for Sales, Government & Education Division of U S WEST Communications. U S WEST is a diversified corporation, with telephone operations serving fourteen states and covering approximately 40% of the contiguous land area of the United States.

For this reason, we are firmly committed to promoting economic development of rural America.

Over the past 2-1/2 years we have worked closely with the Senate and House Agriculture Committees in developing a meaningful grant program to assist rural schools and medical facilities to undertake distance learning telecommunications systems. I am pleased to report on the success of that effort.

Last fall Congress passed and the President signed the 1990 Farm Bill which included a key provision (Title XXIII, Subtitle D - Enhancing Human Resources). This language authorizes the Rural Electrification Administration (REA) to serve as a catalyst in the economic revitalization of rural areas by making affordable advanced telecommunications available to rural communities. This new program parallels the recommendations found in the Office of Technology Assessment's report to Congress, Linking for Learning.

For the first time, the REA is authorized to make both grants and loans to rural schools and medical providers for the purchase or lease of telecommunications systems such as distance learning systems and medical networks. This funding can be used for telecommunications terminal equipment, transmission facilities, data terminal equipment, interactive video equipment, computer hardware & software, network components, and communication satellite ground station equipment.

I urge you to fully fund this vital program at the FY 1992 authorization level of $50 million. The total combined five-year authorization is $245 million.

U S WEST believes that modern information links are a critical ingredient to the future economic prosperity of rural communities. Geographic constraints inherent in rural environments can be reduced or eliminated by technological solutions.

Education

No where is the link between telecommunications and economic development more apparent than in educational applications. Without strong schools, businesses are unlikely to locate in a rural area, and without jobs, rural communities cannot thrive.

Distance learning uses telecommunications technology to transport information, not people. Distances between teachers and students are bridged with a variety of technologies including fiber, microwave, coaxial cable, satellites, and others.

For example, in Glendale, Arizona, U S WEST worked with the local school district to implement a new distance learning system involving ten sites with two-way interactive audio & video capability. Before this system was installed, a Japanese teacher would only be able to reach about five students per class, and spend considerable time traveling around the school district. Now those classes can be held without transporting either the instructor or the student. Other advanced math and science classes, as well as foreign languages like Russian, Chinese and Arabic can now be offered throughout the school system.

This technology has even more dramatic implications in rural settings. Many rural schools are simply unable to offer advanced algebra, college required courses in science, as well as foreign languages due to a lack of fiscal resources and students. The nearest class a student needs may be miles down the road, if at all. Distance learning has the ability to equalize access to educational opportunities.

An example where distance learning has enhanced educational opportunities is St. Louis County School District #710 in Northern Minnesota. U S WEST links the small community of Orr to a larger school in Cook 20 miles away, enabling teachers and students to see and hear each other via live two-way interactive video. The communities share teaching resources to conduct classes between the two locations such as math analysis, trigonometry, college prepatory English, beginning French, psychology and 12th grade English. The system is put to full use with community service programs in the evenings and weekends and their next step is to offer college credit English classes from a local community college.

Rural school districts have severe limitations on their finances however, making this type of capital investment often impossible. It is for this reason why the new REA grant fund is so desperately needed. Now schools can directly apply to the REA for grants to undertake this type of telecommunications project. And, the legislation recognizes that fundamental decisions regarding selection of appropriate technology, options for lease or purchase of equipment, and focus of the educational offerings, all should be made at the local level.

Health Care

Likewise, rural health care facilities similarly have critical needs that can be met with the REA grant program.

Telecommunication systems can allow rural hospitals and remote clinics to share training, diagnostic services, test results, x-rays and emergency procedures. Linking via technology with larger hospitals ensures that rural patients have access to the most current health care information available. Also, this type of system can alleviate the feeling of isolation by health care professionals in rural settings.

Spin-Off Benefits

Targeting federal resources into the telecommunications infrastructure of rural communities will have significant economic development benefits. There are numerous examples of the importance of a modern telecommunications system helping rural areas become more competitive with their urban counterparts.

A new fiber optic cable and accompanying capabilities installed in Breda, Iowa (population approximately 500), has encouraged an insurance and credit card telemarketing firm to establish a new sales center that now employes 43 local residents. Likewise, several years ago Citicorp moved its credit card processing operation to Sioux Falls, South Dakota. This operation depends heavily on a modern telecommunications system, and is responsible for hundreds of jobs in South Dakota.

These are just a few of the many examples of how modern telecommunications facilities enhance rural development. In addition, by upgrading the capability of rural schools and health care facilities, these public telecommunication facilities can be used during non-school hours for teacher training, adult education, and other public purposes. For example, in Staples, Minnesota (population approximately 3,000), the local distance education system has been used to train the volunteer firefighters in handling of hazardous materials. Without this infrastructure, the firefighters would have to travel 3 hours to the Twin Cities, and be away from their families and full-time jobs. This technology gave them a way to get the training without leaving their community.

For all of these reasons, the new REA grant program offers a unique opportunity to make a real difference in rural America.

Fiscal Priorities

We at U S WEST also recognize the serious fiscal constraints inherent under the new federal budget compromise agreed to last fall. It will not be easy to find resources for any new effort. However, we also believe it is essential that the federal government support those efforts that will spur further economic development in all areas of our economy, and especially in rural areas.

I also want to make one additional recommendation regarding the funding of this program. The original authorizing legislation also allows rural business to be eligible for grants and loans under this same program.

Given the tight fiscal situation facing the federal government, we believe the REA's priority should be in the area of supporting public telecommunications projects, such as schools and medical facilities. Congress should signal this priority in the appropriations bill since the three eligible constituencies of the grant and loan program are given equal weight in the original authorization. Most, if not all, of the grants and loans should be directed to schools and health care facilities.

Finally, I would encourage the Subcommittee to signal your support for this program by instructing the REA to begin writing the necessary rules and regulations, and implement this program immediately after appropriated funds are received. The original deadline for issuing regulations was 160 days after enactment of the bill. Indications are that the Department has not begun work on the regulations, which could cause unnecessary delay this fall.

Summary

In conclusion, U S WEST believes there is a definite link between a modern telecommunications infrastructure and economic development -- particularly in rural areas. We encourage you to fully fund the new distance education grant program of the REA at $50 million in FY 1992.

In addition, we hope you will target these resources to public facilities, namely schools and hospitals, and encourage the REA to move quickly in developing regulations and administering this program.

Thank you for this opportunity. Please contact me if you have additional questions.

UNITED STATES TELEPHONE ASSOCIATION

STATEMENT OF BUD L. MORROW, VICE PRESIDENT AND GENERAL MANAGER, LAKEDALE TELEPHONE CO.

OPENING REMARKS

Mr. Chairman and Members of the Subcommittee, I am Bud L. Morrow, Vice President and General Manager of Lakedale Telephone Company. I appear before you as a representative of the United States Telephone Association (USTA). USTA represents about 1100 local telephone companies that provide over 98 percent of the access lines in the United States. USTA members range from large publicly-held corporations to small family-owned companies and cooperatives owned by their customers. I present this testimony in the interests of the members of USTA and the customers they serve.

Local telephone companies are dedicated to fulfilling two goals: serving the nation's telecommunications needs and maintaining universal service at reasonable rates. USTA members, both large and small, firmly believe that the targeted assistance offered by a strong and viable Rural Electrification Administration (REA) remains essential in order to maintain a healthy and growing rural telephone industry that contributes to the provision of universal telephone service. We appreciate the strong support this committee has provided for the REA telephone program since its inception in 1949 and look forward to a vigorous REA program for the future.

RECOMMENDATIONS

USTA recommends the following for the continuation of a strong REA Telephone Program:

1. Set the fiscal year 1992 telephone loan program authorization at the FY 1990 levels. Specifically, we recommend the following loan levels:

REA Insured Loans	$239,250,000 - $311,025,000
Rural Telephone Bank Loans	$177,045,000 - $210,540,000
REA Loan Guarantees	$119,625,000 - $138,765,000

2. Set the REA administrative budget at a level to ensure that adequate personnel and equipment are available to perform its statutory functions.

The need for funding continues to be great. At the beginning of fiscal year 1991, REA had on hand in excess of $500 million in loan applications. This amount of applications is the highest in memory and attests to the continuing need for REA. We understand the budget constraints Congress must face, but the Administration's fiscal year 1992 budget for REA threatens our ability to adequately serve the nation's telecommunications needs and to maintain universal service. The Administration's budget proposals for the REA telephone programs would change REA from an effective rural development program to one of little or no benefit to rural telephone customers. For FY 1992 the Administration proposes to eliminate all insured and 100 percent guaranteed loans and to substitute 70 percent guarantees of privately originated loans. In addition, it once again proposes to dramatically increase RTB interest rates and accelerate the schedule for Bank privatization. USTA strongly opposes these proposals.

A CHANGING INDUSTRY

The telephone industry is in the midst of the most dramatic change any mature industry has ever undergone. Both the technological underpinnings and the regulatory atmosphere are much different than they were just a few years ago.

One constant is that utilities are capital intensive. This is particularly true of rural telephony. Rural telcos must invest large sums of capital to extend service, modernize plant and provide new services. According to the 1989 Aspen Institute Study, Rural America in the Information Age: Telecommunications Policy for Rural Development, 68 percent of REA borrowers' switching offices still have mechanical step-by-step technology. At the present rate of replacement, it could take up to 25 years to convert to digital switching in order to provide the new services that technology already is bringing to urban customers. The need for affordable, long term debt capital for rural America is urgent and continuing.

Whether the new technology is digital switching, lightwave transmission, or a discrete signalling system which makes possible a host of new telecommunications services, rural customers demand and deserve facilities that provide a quality of service that is equivalent to that received by urban customers. In addition, the application of telecommunications technology makes possible the improvement of educational opportunities and the provision of medical services for rural Americans. These services improve the overall quality of rural life, and help preserve rural communities.

Just as technology is rapidly changing, so is the regulatory structure of telecommunications. The trend is toward cost based pricing. Local residential customers now shoulder a greater share of telephone network expenses. Rural areas tend to face higher costs, because the customer base is smaller and distances are greater between customers. The REA telephone program targets assistance to these rural telephone customers. It keeps them on the network by allowing for reasonable phone bills and extends and expands that network in rural America to meet the future needs of these customers.

THE REA TELEPHONE LOAN PROGRAM AIDS RURAL DEVELOPMENT

The 1980's were a disaster for most of rural America. Over 600,000 manufacturing jobs were lost and farmers left the land at the rate of 37,000 per year. Small wonder that the rural population shrank by five million people.

A recent USTA study entitled, "Telecommunications and Rural Economic Development", concluded that an advanced telecommunications infrastructure attracts new businesses, makes existing businesses more competitive, and enhances the quality of life through provision of essential social services. The study, performed for USTA by MESA Consulting, confirmed our contentions that modern telecommunications services are an essential part of rural America's infrastructure and yield enormous returns to the local and national economy. Telecommunications expands production - agricultural, manufacturing and services - thereby reducing the trade deficit, generating additional Federal, state and local tax revenues, and stimulating employment. Now, when rural areas require a modern telecommunications infrastructure to stimulate vital economic development, REA is needed more than ever.

The REA telephone program has never had a default in its 35 year history. Fully funded and properly administered, it can be a model rural development program. If anything, the REA program should be expanded, not reduced.

REA HELPS RURAL AMERICANS

There is little argument that good, dependable telephone service is integral to modern life. Without the REA program, telephone service quality in rural areas could deteriorate. The telephone amendments to the Rural Electrification Act require that adequate telephone service is provided to the "widest practicable number of rural users" in each borrower's service area. This requirement is called "area coverage" and is a higher obligation for providing service than telephone companies would otherwise have to meet. In 1949 hearings on the original telephone amendments to the RE Act, Congressman W.R. Poage stated, "The bill provides that the REA may require some showing that the operator will make every reasonable effort to serve all of the people of a given area. That is the main purpose of the bill." [emphasis added]

The REA program assures the availability of telephone service in two ways. First, it provides the necessary capital to fund the extension and improvement of facilities. Second, the relatively low cost of that capital enables rural telephone systems to counter inherently high costs of service. After all, offering service at rates which make that service unaffordable is, in effect, the same as having no service at all.

In the Administration budget proposal and in lobbying material REA has published, it is alleged that nearly 100 percent of farms and rural residents have modern telephone service. The January 1991 monitoring report of the Federal-State Joint Board in FCC Docket 80-286 contradicts the Administration's figures. Based on Census data, it shows that seven percent of U.S. households did not have a telephone in the house. In the heavily rural states of Alabama, Alaska, Arkansas, Kentucky, Louisiana, Mississippi, New Mexico, Oklahoma, Texas and West Virginia, over 10 percent of households had no access to basic telephone services needed to summon the doctor or fire department.

REA UNDER ATTACK

As has been the case for most of the last 10 years, the REA telephone loan program is again under attack by its own Administrator, who says REA has left its "roots". In a media and lobbying campaign, the Administrator alleges that in creating the program, Congress never intended for loans to be made at rates which are less than the government's cost of money. Further, he contends that REA telephone loans are made to, and for the benefit of large holding companies. The Administrator stresses that Congress never intended these loans to be made to large companies, that the program is "off the tracks" and should return to its original mission.

The REA telephone program is operating exactly as Congress originally intended. Rural areas are served by large and small companies, who each face great cost pressures there. In fact, the REA telephone provisions in the farm bill demonstrated Congress' understanding of the program's mission - to promote rural telephony. It is the administration of the program in recent years and proposed changes contained in the President's budget which constitute a departure from the original mission of the REA telephone program.

Critical farm bill provisions overturned administrative rules that violated the intent of Congress. The law reversed regulations promulgated in 1989 which: limited what items of telephone plant REA would finance; drastically shortened the repayment period; disqualified borrowers by increasing the financial criteria for a loan; and established de facto needs tests for getting a loan. The farm bill enacted the policies which had served the telephone program well for 40 years. They truly restored the program to its "roots".

The Administrator contends that the program has no "needs test" and as a result, is subsidizing wealthy corporations. The program does indeed have a needs test - a customer needs test. That test is the rural nature of the area served. Unless an area meets very strict criteria for qualification, no REA funds can be lent. This test is still valid. It recognizes the high cost of providing telephone service to the most rural areas. USTA strongly opposes any additional needs test.

An important point about the REA telephone program is that loans are only made to operating telephone companies. No holding companies receive loans. The REA Telephone Program benefits rural Americans. The program is a public-private partnership in which the borrower telephone systems are the conduits for benefits from the federal government to rural telephone customers. The true beneficiaries of the REA program are not the telephone companies that borrow, but their subscribers.

The REA program is totally voluntary. Telephone companies do not have to participate. Some companies serving areas which qualify nevertheless choose not to participate. In so doing, these companies avoid a great deal of regulation and increased responsibility such as area coverage which accompanies REA financing. Companies that borrow do so to expand their customer base and improve service to their customers. There are trade-offs of benefit and burden for companies.

The Administrator contends that the cost of credit to rural telephone companies is no longer a concern - borrowers are financially healthy. One great truth which the Administrator ignores is that companies will invest in areas which provide an acceptable return. Without low cost REA and RTB funds, investment will tend to go to more densely populated, and therefore more lucrative, urban and suburban areas, not to rural areas. REA financing encourages rural investment, increasing positive economic externalities which don't show up in the budget, but have a very real impact on the economy of farming areas and the lives of rural Americans. Without it, the quality and availability of rural telephone service will deteriorate.

The legislative record contradicts the Administrator's assertions that the program has strayed from its roots. Congress addressed the issue of eligible borrowers at the inception of the telephone program. In a February 14, 1949 statement for the record, Rep. W.R. Poage, Chairman of Subcommittee No. 1 of the House Agriculture Committee and author of the rural telephone amendment, stated:

> "H.R.113, therefore, provides that the REA shall give preference in making telephone loans to 'public bodies, cooperatives, non-profit limited dividend, mutual associations, and persons operating existing telephone lines, facilities, or systems through which telephone service is furnished in rural areas'. Thus, every rural telephone system, whether owned by a farmers' mutual, a local operator, or a Bell company can borrow at the same low rate." [emphasis added]

Mr. Poage further stated, ". . . there is a serious and honest attempt here to make provisions to loan money to anybody who will provide rural telephone service, whether they are a cooperative or whether they are the American Telephone & Telegraph Company. If they are in the business, the bill now gives them just as much preference as it gives anybody else."

Clearly, Congress has always intended that any telephone company or cooperative providing service to rural areas be eligible for REA lending. To exclude operating telephone companies owned by or affiliated with holding companies from the program only harms the rural customers served by those operating telephone companies. Under rate of return regulation, the interest rate benefit flows directly and totally to the rural subscribers in the form of lower local service rates. None of the benefits accrue to the borrower. Increased cost of debt directly increases the local service revenue requirement. Providing telephone service in rural areas entails significantly higher costs than providing it in urban or suburban areas. The interest rate benefit the REA and RTB provide is necessary if telephone rates are to remain reasonable and if adequate service to rural subscribers is to be maintained.

How has the program gone "off the tracks" as the Administrator alleges? In short, it hasn't. It is the Administration's proposal to exclude certain borrowers from the program which departs from the roots of the REA telephone program.

As to the Administration's contention that it was never Congress' intent that REA lend at less than the Government's cost of money, I say look at the record. In House Report No. 246, dated March 9, 1949, it is stated:

> The 2-percent-interest rate provided in this bill is clearly a form of subsidy.... However it is a subsidy of the most desirable type, since its benefits will accrue only to those who have the initiative to undertake the expansion and development of the Nation's physical assets.
>
> In any event, it is subsidy which will cost the Nation very little - merely the difference between the interest paid by the Federal Government on the money it borrows and the 2-percent interest at which it is loaned to telephone companies.

At the very inception of the telephone program Congress recognized that the provision of low interest money was essential in order to encourage investment in rural areas where the cost of providing service is so high. Nothing could be further from the truth than the Administration's charge that the program has broken faith with the original intent of its architects. The Administration's proposal to remove the interest rate subsidy and drastically increase the cost of credit departs from the roots of this successful program. The proposal would not provide sufficient incentives for rural investment.

SUMMARY

- As the legislative record proves, the REA Telephone Program has remained true to its framers' intent.
- The Administrator and others who are attacking the REA program do not understand its goals, its benefits or its operation.
- In truth, it is the Administration who wants to change the program from its Congressionally mandated mission.
- Congress understands the program and has recognized its value for over 40 years.
- USTA urges restoring funding to FY 1990 levels and providing adequate funding for the administrative budget.

WISCONSIN, MEDICAL COLLEGE OF

STATEMENT OF MICHAEL BOLGER, PRESIDENT

Mr. Chairman, thank you for the opportunity to submit this statement regarding the Rural Health Information and Technology initiative by the Medical College of Wisconsin.

Access to quality medical services in rural American is a growing problem. Of particular concern is the recruitment and retention of Primary Care physicians and the stabilization of other health professionals. They, and their urban colleagues, are confronted by the information explosion and the need to process and interpret large amounts of clinical information in order to ensure proper clinical decision making. This is compounded by overriding issues of health care expenditures, quality outcomes and a host of perplexing bioethical issues. The Secretary of Agriculture has specifically recognized the plight of the rural health delivery system and has encouraged further resource sharing among health delivery program, as well as increased technology sharing and communication between rural and urban communities.

To meet these needs, The Medical College of Wisconsin (MCW) has undertaken to establish a Health Information Technology Center (HITC). The HITC recognizes that we live in an information age, and it is concerned with information, its management, its communication, its analysis and its development for education. It also recognizes that technology has created vexing bioethical dilemmas which require analysis, and that cost and quality assessments are necessary elements in attempts to improve the systems of care.

The HITC attempts to address these issues regionally through the development of interactive, cooperative networks based on state-of-the-art informatics communications systems. In this way, it is hoped the knowledge and skills of practitioners throughout the region will be enhanced and that both the health care system and the economic base of rural communities will be strengthened.

MCW proposes to construct a 145,000 square foot facility on its campus to house programs in informatics, medical services evaluation and bioethics, as well as conference facilities and academic support systems. It further proposes to create network relationships with rural communities in Wisconsin and the contiguous regions of the states which border it. No program that might accomplish a similar purpose exists in this region.

The Department of Agriculture is an appropriate mechanism for funding this project, since the HITC's rural networks achieve important objectives of the Department. Moreover, this project is central to MCW's master plan and it has the commitment of the MCW Board of Directors and of business, political and medical leaders throughout the region. Construction of the HITC facility will be a shared responsibility, with federal funds matched by funds from MCW. It represents a shared solution to shared regional and national problems.

Rural Health Needs

Problems in obtaining quality medical services in rural America are growing. They include physician and nursing shortages, actual and threatened hospital closures and a growing crisis due to deteriorating economic and social supports. Yet efforts to address these problems have been fragmented, limited by the scope of funding and by efforts that are issue-specific. For instance, attempts to rectify shortfalls in medicare funding of rural hospitals fail if efforts to recruit and retain primary care physicians to those areas not successful. Compounding the problem, rural residents are more likely to suffer from chronic diseases and farm workers are more likely to suffer traumatic injuries. Infant mortality rates in rural America, especially for minorities, are a national tragedy.

Wisconsin is principally a rural state, and the vast bulk of medical care is provided at sites that lack a high concentration of medical services. The increasing complexity of medical care and the burgeoning information that affects clinical decisions place an increasing demand on the rural practitioner. Support systems must be created that facilitate practitioners' access to information and consultation. The HITC is such a support system.

Surveys of rural physicians highlight their concerns about financial survival, lack of access to continuing medical education, difficulties in management of their offices with increasing demands for information from insurers and regulators, and problems in developing effective peer review mechanisms.

The HITC Responds to Rural Health Needs

Thus it is clear that there are significant health service delivery problems for the state of Wisconsin, the region, and the nation. The HITC proposes to respond to these problems with a set of programs and technological networks capable of linking rural providers and an academic health center for purposes of maintaining and strengthening the rural health care system and stabilizing the economic base of rural communities.

The HITC has the following goals;

(1) To develop and implement health information systems and to assure their integration within the College, the Medical Center and the region. These include Library Information Systems, Data Base Systems and Clinical Information Systems.

(2) To facilitate health services research and bioethics assessment, and to apply the principles of cost containment, total quality improvement and bioethics to the practice of medicine.

(3) To create regional networks of computers and people devoted to utilizing information technology for improved health care.

(4) To foster the use of computers and information networks for self-directed education, thereby enhancing the knowledge and skills of students and practitioners throughout the region.

Planning for the development of the HITC began in 1988. Initial efforts focused on inter-college and medical center activities. Strengths and weaknesses within key areas were identified. The basic organizational structure of the center was fashioned and staff were assigned or recruited to begin to manage the project.

Early in 1988, efforts to include rural providers were undertaken, so that the planning process would be a jointly performed task, reflecting the special needs and perspectives of the rural community. In addition, urban health care providers were included, because the HITC will serve urban needs as well as rural. In fact, a key premise is that some ideas and strategies may transfer back from rural to urban settings, or vice versa. The planning activities focused on assessing the relevance, feasibility and need for the HITC. Interviews and site visits took place in 1989 and 1990, and a vigorous dialogue between senior administrative and medical staff representatives maintain open lines of communication.

Current projects under development within the HITC include:

Rural Network: A network between MCW and rural providers has been initiated with the participation of providers at Northern Illinois Medical Center, McHenry, Illinois; Howard Young Medical Center, Minoqua-Woodruff, WI; Door County Memorial Hospital, Sturgeon Bay, WI; Burlington Memorial Hospital, Burlington, WI; and the Marshfield Clinic in Marshfield, WI. Communication will be aided by WiscNet, a statewide network jointly developed by the College and other institutions of higher education in Wisconsin. This network will be tied by a system of fiberoptic telecommunications lines over which various communications are transmitted.

Integrated Library System (ILS): The first phase of a medical information network is complete with a capacity for 12 simultaneous users from virtually any location with modem and computer devices. It incorporates a CD-ROM based bibliographic service for MEDLINE, and five other specialized databases. The ILS includes a computer laboratory for use by medical students and staff.

Health Services Research: Under the auspices of the Center for Medical Services Evaluation, major research and educational efforts are underway in the measurement and assessment of medical outcomes, and the development of information systems in ambulatory and inpatient centers. Two programs, the Uniform Clinical Data Set, and the Wisconsin ambulatory review program are national demonstration programs funded by the federal government. In conjunction with the Department of Family Medicine efforts to establish a rural health services research initiative are also underway.

Area Health Education Center: In collaboration with UW-Madison, MCW has developed and submitted for funding the first AHEC program in Wisconsin. This program will help rural and urban areas which are underserved. Programs to identify and support the training of new health care providers are proposed.

Continuing Medical Education: In 1990 almost 7,000 physicians participated in the MCW continuing education program. Special program directed toward rural health care issues focused on: access to health care; Bioethics: and practical application of information technology: Programs were delivered at rural institutions which are participating in the development of our network.

Health Care Quality/Cost: HITC staff personnel have worked with business coalitions and health care providers in two rural communities establishing demonstration projects that manage cost and quality while enhancing communication between the providers and buyers of health services.

Many research activities of the HITC are supported by grants from HCFA, the NIH, the Wisconsin Peer Organization (WIPRO) and other agencies. Current year direct costs total more than $2.0 million.

RELATIONSHIP TO FEDERAL GOVERNMENT AND TO THE DEPARTMENT OF AGRICULTURE

We seek federal funding for this project because many of the goals of the HITC are national goals. These include:

(1) Stabilizing the health care provider in rural and urban underserved areas.

(2) Increasing quality care through the development of informatics systems.

(3) Enhancing medical care quality through outcomes analysis and technology assessment.

(4) Creating supportive and interactive systems for bioethics evaluation and consensus.

A recent report prepared by the Secretary of Agriculture entitled, "Rural Economic Development for the 90s: A Presidential Initiative" specifically recognized the plight of the rural health delivery system and offered the following recommendations:

- "Encourage further resources-sharing among federally supported or operated health delivery programs."

- "Increase technology sharing and communications between rural and urban communities..."

The Congress has recently addressed the specific need for establishing computer networks involving rural communities through S.2830, the Food, Agriculture, Conservation and Trade Act of 1990. This act makes funds available for rural communities to improve the use of telecommunications, computer networks, and related advanced technologies by persons associated with rural community facilities or with those facilities who participate in the programs established under this legislation, including medical professionals.

In proposing to construct a new facility to house the HITC, The Medical College of Wisconsin commits itself to meeting the need for increased access to quality health care in rural America, consistent with the USDA recommendations. This project will fulfill two important needs in rural health care.

In proposing to construct a new facility to house the HITC, The Medical College of Wisconsin commits itself to meeting the need for increased access to quality health care in rural America, consistent with the USDA recommendations. This project will fulfill two important needs in rural health care.

The first is the diagnosis and treatment of diseases indigenous to agricultural areas. The agricultural living and work environment exposes rural residents to diseases and ailments strikingly different than in urban areas. In addition, dispersed rural living patterns create a small patient population which in turn makes it more difficult for rural medical personnel to accurately treat patients. This creates a great need for information and resource sharing in rural areas.

The second deals with health manpower. Rural areas need a stable health care infrastructure to continue to serve rural populations as well as retain and recruit new health care personnel. Programs of the HITC will assist rural communities in achieving these goals.

Thus, by stabilizing the rural health care infrastructure and collecting data on diseases indigenous to agricultural producing areas, the HITC will begin to meet two major needs outlined both by the Congress and the Secretary of Agriculture: strengthening a deteriorating health care system and technology sharing. Ultimately, the quality of rural and agricultural life will be improved through this cost-shared initiative.

Mr. Chairman, thank you again for the chance to present this statement to the subcommittee. We appreciate your support for the rural health initiative we are proposing and request that FY'92 funds be appropriated to assist us in proceeding with this vital project.

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